Tables

PRACTICE EXERCISE

Level - 1

Directions for questions 1 to 5: Answer the following questions based on the given information.

The table given below shows the number of people belonging to a certain age group who responded to a survey on their favourite actor. Assume any respondent in the age group of 0–5 years is not considered.

Actor \ Age (in years)	Above 15 till 20	Above 20 till 30	Above 30
AB	12	8	53
AK	14	10	10
SK	12	24	28
RR	2	8	22
AD	4	6	30
RK	18	6	8
BJ	4	4	4

1. What percentage of people whose age is upto 30 years responded that 'AD' is their favourite actor?

(a) 7.1% (b) 7.6%

(c) 8.3% (d) 14.1%

(e) Cannot be determined

2. If there were no respondents in the age group of above 5 till 15 years, then what percentage of people aged above 20 till 30 years responded that their favourite actor is other than 'SK'?

(a) 64% (b) 60%

(c) 75% (d) 36%

(e) 46%

3. If the actor who gets the maximum percentage of respondents nationwide will be capped as the 'Best Actor of the Nation', then which actor will cap the title?

(a) AB (b) AD

(c) RK (d) SK

(e) Cannot be determined

4. If the total number of people in the age group of above 5 till 15 years was 120, then what percentage of the total number of people surveyed were in the age group of above 20 till 30 years?

(a) 18% (b) 23%

(c) 16% (d) 14%

(e) 30%

5. If there were no respondents in the age group of above 5 till 15 years who like AB and AK, then by what percentage the number of people who like AB is more than the number of people who like AK?

(a) 14% (b) 114%

(c) 57% (d) 124%

(e) 87%

Directions for questions 6 to 10: Study the table and answer the questions given below :

The following table provides the distribution of students of two faculties i.e. Arts and Science enrolled in four courses namely Business Management, Typewriting, Costing and Accounting.

Distribution of Students according to Professional Courses

Serial Number	Course	Faculty			
		Arts		Science	
		Girls	Boys	Girls	Boys
1	Business Management	25	45	25	65
2	Typewriting	23	186	20	32
3	Costing	25	120	12	58
4	Accounting	12	100	3	5

6. If 60% of boys and 70% of girls are successful in the course taken by them, what is the combined pass percentage?

(a) 54% (b) 58%

(c) 62% (d) 66%

(e) 52%

7. For which course, the percentage of girls among total number of students in that particular course the highest?

(a) Business Management

(b) Type writing

(c) Costing

(d) Accounting

(e) Cannot be determined

8. By what per cent, the number of students studying Business Management more or less than the number of students studying Typewriting?

(a) 35% (b) 44%

(c) 55% (d) 66%

(e) 39%

9. The number of students of Arts studying Costing is what percentage of the total students of Arts faculty?

(a) 10% (b) 15%

(c) 18% (d) 27%

(e) 32%

10. Taking all the courses together, by what percentage do the boys exceed girls?

(a) 250% (b) 280%

(c) 308% (d) 321%

(e) 344%

Direction for question 11 : This question is followed by two statements, I and II. Answer each question using the following instructions:

Choose "a"if the question can be answered by using the statement I alone, but not by using statement II alone.

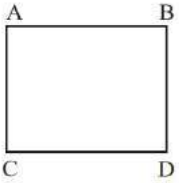
Choose "b"if the question can be answered by using statement II alone, but not by using statement I alone.

Choose "c"if the question can be answered by using either statement alone.

Choose "d"if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Choose "e"If the question cannot be answered even by using both statements together.

11. Is quadrilateral ABCD a parallelogram?



I. AD and BC bisect each other.

II. AD = BC

Direction for questions 12 to 15: Answer the questions based on the following information.

The following table gives the performance of five Indian cricketers across four matches in the World Cup '99.

Player	South Africa		Australia		Sri Lanka		England	
	Runs scored	Wickets taken	Runs scored	Wickets taken	Runs scored	Wickets taken	Runs scored	Wickets taken
Tendulkar	82	0	33	4	44	0	71	0
Dravid	41	0	9	0	107	0	109	0
Ganguly	28	3	101	0	3	1	8	0
Jadeja	32	0	76	0	54	0	2	0
Robin Singh	18	1	31	3	14	4	38	2

12. What is the ratio of Tendulkar's average runs to Jadeja's total runs (Assuming that Tendulkar got out in all the matches) ?

(a) 1 : 2.86

(b) 1.476 : 1

(c) 1 : 1.476

(d) 1:3.14

(e) 3.14:1

13. If every ten runs scored in a match is given one point and each wicket gets one point, then who scored the maximum points ?

(a) Tendulkar

(b) Dravid

(c) Ganguly

(d) Jadeja

(e) Robin Singh

14. Which of the following is definitely false ?

(a) India was bundled out by Australia for 226 runs.

(b) Australia won the match against India by two wickets.

(c) South Africa was got a target of more than 210 by India.

(d) Both (b) and (c)

(e) Both (a) and (c)

15. If contribution is calculated as runs scored / (10 - wickets taken), against which team was Robin Singh's contribution maximum ?

(a) South Africa

(b) Australia

(c) Sri Lanka

(d) England

(e) Data insufficient

Direction for questions 16 to 19: Answer these questions based on the following information.

The table below gives the Commodity Price Index of the various commodities over the period 1996-98.

Commodity	1996	1997	1998
Rice	897.2	897.2	898.6
Wheat	517.5	519.8	503.2
Groundnut Oil	827.8	867.4	949.9
Sugar	565.3	564.0	560.0
Jute	940.0	928.7	962.0
Cotton	506.0	510.0	512.2

Base Index 1969-70 = 100 ;

Price in a year = Price in 1969-70 × Index in the year/ 100

For any commodity, Price in year A / price in year B = Index in year A / index in year B

16. If the price of 1 kg of rice in 1996 was Rs. 25, what is its price in 1998?

(a) Rs. 25.65 (b) Rs. 25.48

(c) Rs. 25.12 (d) Rs. 26.14

(e) Rs. 25.04

17. Which commodity showed the greatest percentage increase in price between 1996 and 1998?

(a) Cotton (b) Sugar

(c) Wheat (d) Jute

(e) Groundnut oil

18. What is the percentage price increase per kg of jute between 1996 and 1998?

(a) 2.29% (b) 2.41%

(c) 2.34% (d) 2.31%

(e) 2.55%

19. If the cotton price per kg in 1969-70 was Rs. 30, what is the price increase in Rs./kg between 1997 and 1998?

(a) 1.91 (b) 1.85

(c) 2.14 (d) 0.66

(e) 2.55

Direction for questions 20 to 24: The following table gives the total forex reserves of India in million $ terms.

Year	1996	1997	1998	1999
Foreign currencies	18344	22367	25975	33470
Gold	3621	2894	3270	3795
SDRs	148	262	96	442

20. What was the annualised growth rate in total forex reserves from 1996 to 1999 ?

(a) 70.5% (b) 23.5%

(c) 17.8% (d) 26.3%

(e) 32.4%

21. Which year had the highest percentage of gold reserves ?

(a) 1996 (b) 1997

(c) 1998 (d) 1999

(e) Both (a) and (c)

22. Which of the following clearly followed the trend in total forex ?

(a) Foreign currencies (b) Gold

(c) SDRs (d) Both (a) and (b)

(e) Both (b) and (c)

23. If 1 $ = Rs. 30 in 1996 and 1 $ = Rs. 40 in 1998 what is the ratio of total forex reserves in 1998 to 1996 in rupee terms

(a) 1.58 (b) 1.65

(c) 1.84 (d) 1.97

(e) 1.76

24. If 60 per cent of foreign currency reserves were in 1998 and 70 per cent of foreign currency reserves were in 1999, what was the percentage increase in reserves in $ terms from 1998 to 1999 ?

(a) 54.22% (b) 46.88%

(c) 50. 33% (d) 44.63%

(e) 56.47%

Direction for questions 25 to 29: These questions are based on the table and information given below:

Ghosh Babu surveyed his company and obtained the following data. Income tax is paid from Profit Before Tax and the remaining amount is apportioned to Dividend and Retained Earnings. The Retained earnings were accumulated into Reserves. The reserves at the beginning of 1991 were Rs. 80 lakh.

(Fig. in Rs.lakh)	1994	1993	1992	1991
Share Capital	310	205	98	98
Sales	6435	4725	2620	3270
Profit Before Tax	790	525	170	315
Dividends	110	60	30	30
Retained Earnings	400	245	70	140

25. In which year was the tax per rupee of profit before tax the lowest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

(e) Cannot be determined

26. In which year was the sales per rupee of share capital the highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

(e) Indeterminate

27. In which year the profit before tax per rupee of sales was the highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

(e) Data insufficient

28. In which year was the percentage addition to reserves over previous years reserves the highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

(e) Cannot be determined

29. Amount of the reserves at the end of 1994 is

(a) 935. (b) 915.

(c) 230. (d) 953

(e) None of these.

Direction for questions 30 to 34: These questions are based on the table and information given below.

Party	Change in seats obtained for every +-1% vote swing	Seats won in last election (Total seats = 200)
Democrats	3	90
Republicans	4	65
Liberants	1	12
Socialists	2	8
Others	3	25

30. What per cent swing the Republicans need in their favour to win a majority in the house?

(a) 8% (b) 8.75%

(c) 8.25% (d) 9.25%

(e) 9%

31. If the Liberants, Socialists and others form an alliance which of the following ensures a victory for them?

(a) + 12%, + 16%, +2 % (b) + 20%, –3%, +14%

(c) +9%, + 2 %, + 8 % (d) +8%, +3%, +10%

(e) None of these

32. Which party has the highest per cent increase in seats won every 1 per cent swing as compared to the last election?

(a) Others (b) Socialists

(c) Republicans (d) Liberants

(e) Democrats

33. If the per cent swing in favour of the Republicans is the same as that against the Democrats, then what will be the tally of seats for the Democrats if the Republicans win 97 seats?

(a) 58 (b) 60

(c) 66 (d) 76

(e) 70

34. If the number of votes polled increases by 1.1per cent. How many seats the Democrats are likely to get?

(a) 90 (b) 99

(c) 100 (d) 80

(e) Indeterminate

Direction for questions 35 to 40: Answer these questions based on the following table.

Labour and Production Data For XYZy Ltd.

Year	Production (tonnes)	No. of workers	Hours worked per day per person	Hourly wages (Rs.)
1970	550	1300	12	125
1975	700	1500	13	140
1980	850	1650	12	150
1985	1225	2000	11	175
1990	1550	2200	10	200
1995	1875	2500	9	250
2000	2300	2950	8	275

Number of days worked = 250

35. For which year has the productivity per person been the highest, if productivity is amount of production per worker ?

(a) 1975 (b) 1990

(c) 1995 (d) 2000

(e) 1980

36. The average productivity of XYZ Ltd. for the given seven years is approximately

(a) 0.55 (b) 0.64

(c) 0.75 (d) 0.70

(e) 0.80

37. What has been the companies total cost of production on labour on any given day in 1990?

(a) Rs. 44 lakh (b) Rs. 30 lakh

(c) Rs. 70 lakh (d) Rs. 56 lakh

(e) Rs. 64 lakh

38. The total wage bill for the company has been the highest in

(a) 1975 (b) 1980

(c) 1995 (d) 2000

(e) 1970

39. The year in which number of man-hours worked is least is

(a) 1970 (b) 1985

(c) 1995 (d) 2000

(e) 1990

40. What is the total man-hours worked by a single employee of XYZ Ltd. in the given 7 years?

(a) 22250 (b) 20125

(c) 15500 (d) 16250

(e) 18750

Direction for questions 41 to 46: Answer the questions based on the following table.

The table gives the statistics of the loans disbursed in rural and agricultural sectors from XYZ bank.

Years	Rural Loans Disbursed		Agricultural Loans Disbursed		Consumer Price Index
	No. of Units	Avg. Value of Loans (in 1000s)	No. of Units	Total Cost of loans (in1000s)	
1970	60	28	25	250	4.49
1971	75	25	30	300	5.29
1972	130	20	35	350	6.65
1973	280	25	40	800	5.69
1974	190	40	25	375	6.01
1975	230	10	15	600	6.12
1976	65	15	80	800	6.15
1977	75	20	60	480	6.20
1978	230	15	70	2,800	6.23
1979	240	10	35	700	6.29
1980	90	30	75	1,500	6.30
1983	90	35	80	1,600	6.50

41. What is the average cost of agricultural loans disbursed in the given years?

(a) Rs. 18,500 (b) Rs. 16200

(c) Rs. 9,590 (d) Rs. 15,400

(e) Rs. 17,800

42. What is the percentage increase in the consumer price index in the given years?

(a) 50% (b) 45%

(c) 30% (d) 40%

(e) 35%

43. In which year was the difference between the total cost of Rural Loans and Agricultural Loans maximum?

(a) 1974 (b) 1976

(c) 1978 (d) 1983

(e) 1980

44. What is the average value of rural loans in the given years (approx)?

(a) Rs. 21,000 (b) Rs. 25,000

(c) Rs. 23,000 (d) Rs. 26,000

(e) Rs. 22,000

45. In 1970 if the loan value is 100 and the consumer price index is 4.49, what would have been the percentage increase of the loan value for 1971 in terms of 1970?

(a) 17.8% (b) 20%

(c) 40% (d) 25%

(e) 35%

46. Which of the following is (are) true?

I. Total cost of agricultural loans in 1972 was more than the total cost of rural loans in 1980.

II. Consumer price index in 1972 is 106.8 per cent of the consumer price index in 1971.

III. The value of any rural loan in 1972 has not exceeded Rs. 20,000

(a) I only (b) II only

(c) I and II (d) I, II and III

(e) II and III

Direction for questions 47 to 51: The following table gives the financial details of leading consumer goods company for three years. The sales, gross profit, net profit and reserves are all in crores. The Market price and EPS are in Rupees.

	1999	1998	1997 (six months)
Sales	2007.95	1810.65	454.56
Gross profit	476.53	502.03	36.56
Net profit	397.11	418.92	27.89
Reserves	2070.51	436.92	27.89
EPS	16.15	27.93	0.96
Dividends (in %)	25	6	2
Market price on 31/3	94.2	39.3	11.8

47. If 1997 twelve months results had been twice as much as the six month results, what per cent of 1997 sales was 1999 sales?

(a) 55% (b) 110%

(c) 220% (d) 180%

(e) 160%

48. If I bought 100 shares of face value Rs. 10 in 1996 and sold it on 31.3.1999, how much money did I gain?

(a) Rs. 8,450 (b) Rs. 8,870

(c) Rs. 8,260 (d) Rs. 8,420

(e) Rs. 8,430

49. Which of the following had the same trend as gross profit?

(a) Sales (b) Reserves

(c) Market Price (d) EPS

(e) Dividends (in %)

50. If sales increase in the same manner as 1998 to 1999 for next five years, what would be sales in 2001?

(a) Rs. 2,470 crore (b) Rs. 2,341crore

(c) Rs. 2,543 crore (d) Rs. 2,673 crore

(e) Rs. 2,823 crore

51. Which year had the highest gross profit to sales ratio?

(a) 1997 and 1999 (b) 1999

(c) 1997 (d) 1997 and 1998

(e) 1998

Direction for questions 52 to 56: These are based on the following table.

Which provides the details about the hotel projects in Mumbai. Here cost is the initial cost of investment for a particular project.

New hotel projects in Mumbai

Project	No. of rooms	Cost (Rs.cr)	Year of Completion	Company
Wellington Mews	250	125	1999	IHCL
Airport Hotel	350	150	1999	IHCL
Leela Hotel	310	235	1999	Leela Venture
Mumbai Hilton	250	250	1998	Bharat Hotels
Radisson Hotel	536	225	1998	Lokhandwala
Marriott	500	250	1999	Raheja
Sheraton Hotel	300	300	1999	ITC Hotels
Hyatt	500	250	2000	Asian Hotels

52. Which of the following company has the least investment per number of rooms ?

(a) ITC (b) Lokhandwala

(c) Asian Hotels (d) Raheja

(e) Bharat Hotels

53. If the increase in value of investment is 10 per cent p. a., what would be the future value of total investment for projects completed in 1998 as on the year 2000 ?

(a) Rs. 1,395 cr (b) Rs. 675 cr

(c) Rs. 840 cr (d) Rs. 2,400 cr

(e) Rs. 570 cr

54. Which of the following company has the highest ratio of number of rooms to investment in the given years ?

(a) Bharat Hotels (b) ITC

(c) Leela Venture (d) Asian Hotels

(e) Lokhandwala

55. If the project of IHCL for Wellington Mews is launched on Jan 1, 1997, what would be the compound rate of interest p.a., if the amount claimed by the financing firm Ashok Leyland is 180 crore on Jan 1, 1999?

(a) 12% (b) 10%

(c) 18% (d) 15%

(e) 20%

56. If the compound rate of interest is 10% p.a., what will be the value of investment in Hyatt after 3 years of its completion ?

(a) 332.75 cr (b) 325.25 cr

(c) 350.75 cr (d) 345.75 cr

(e) None of these

Direction for questions 57 to 61: The following table shows the domestic sales of scooters by the five manufacturer from 1988 to 1993.

Figures in (' 000 s).

Manufacturer	1988	1989	1990	1991	1992	1993
A	440	480	470	500	520	510
B	400	410	415	415	420	430
C	380	390	390	400	420	495
D	360	380	400	415	440	500
E	480	440	440	420	425	435

57. Considering the period given, the domestic sales of which manufacturer is the highest ?

(a) A (b) B

(c) C (d) D

(e) E

58. What is the approximate share of domestic sale of scooters of the manufacturer B during 1989?

(a) 10.5 % (b) 25.5%

(c) 15.5 % (d) 18.5%

(e) 19.5%

59. During 1993, the sale of which manufacturer has shown the maximum percentage increase over the previous year ?

(a) A (b) B

(c) C (d) D

(e) E

60. What is the ratio of the minimum sale to the maximum sale of scooters during 1991?

(a) 0.9 (b) 0.8

(c) 0.6 (d) 0.5

(e) 0.7

61. In respect of which of the following combinations, the sale of scooters is the highest over the period shown ?

(a) D – 1993 (b) A – 1991

(c) A – 1993 (d) A – 1992

(e) C – 1993

Direction for questions 62 to 66: Answer these questions based on the table given below.

The following table is incomplete. It is based on an opinion poll conducted about two parties, Party A and Party B in a bi-party country.

	Party A			Party B		
	Definitely corrupt	Moderately corrupt	Not corrupt	Definitely corrupt	Moderately corrupt	Not corrupt
Men			16	26	12	38
Women	28		62	19		49
Total	82				86	

62. How many people participated in the opinion poll ?

(a) 110 (b) 218

(c) 330 (d) 440

(e) 200

63. What is the percentage of women in the opinion poll population ?

(a) 58 (b) 65

(c) 71 (d) 51

(e) 68

64. What is the ratio of the number of men calling Party A moderately corrupt to the number of women calling Party B moderately corrupt ?

(a) 1 : 12 (b) 7 : 9

(c) 1 : 14 (d) 1 : 9

(e) Data insufficient

65. If the same percentages can be extended to the nation and 1,35,000 people voted Party B as definitely corrupt, what is the population of the country?

(a) 2,20,000 (b) 3,30,000

(c) 6,54,000 (d) 1,10,000

(e) 6,45,000

66. What is the percentage of men calling Party A not corrupt ?

(a) 3.63 (b) 11.5

(c) 7.25 (d) 20.5

(e) 15.5

Direction for questions 67 to 71: Answer these questions based on the data provided in the table below.

Production and Sale of Indian Mopeds for the Month of March

(No. of vehicles)

Manufacturer	1993		1994		1995	
	Production	Sales	Production	Sales	Production	Sales
A	5851	5829	8154	6335	8614	7761
B	512	447	0	0	0	0
C	10879	10409	11061	10434	9991	10226
D	2121	1247	0	0	0	0
E	9245	8936	6894	8057	9154	8849
F	12032	10197	15171	14516	22979	21201

67. In which of the following cases is the numerical difference between the production and sales the highest?

(a) A - 1994

(b) C - 1995

(c) F - 1995

(d) F - 1993

(e) A - 1995

68. Considering the figures for March 1993, what is the overall total difference during the production and sale of mopeds with respect to all the manufacturers shown?

(a) 2565 (b) 3755

(c) 3465 (d) 3565

(e) 3575

69. For which manufacturer was the production for any year minimum?

(a) B only

(b) D only

(c) E only

(d) Both B and D

(e) Cannot be determined

70. In which of the following cases is the numerical difference between the production and sale the lowest?

(a) A - 1993

(b) C - 1995

(c) C - 1993

(d) E - 1995

(e) D - 1993

71. Considering the given data, in how many cases is the production figure lower than the sales figure?

(a) 6 (b) 5

(c) 4 (d) 2

(e) 3

Direction for questions 72 to 77: Answer the questions based on the table and information given below.

The table given below shows market shares (in per cent) of four products in the four metros during two consecutive years 1993 and 1994:

	Market shares in metros (%)							
→	Mumbai		Kolkata		Delhi		Chennai	
Year ↓ / Product	1993	1994	1993	1994	1993	1994	1993	1994
HD	15	20	30	35	20	15	20	30
CO	25	20	40	45	15	10	20	15
BN	40	45	5	10	30	35	10	10
MT	20	15	25	10	5	10	50	45

72. Which product's market share did not deteriorate between 1993 and 1994 in any city?

(a) HD (b) CO

(c) MT (d) BN

(e) None of the products

73. The number of products which doubled their market share in one or more cities between 1993 and 1994 were

(a) 4 (b) 1.

(c) 2. (d) 3.

(e) None of these

74. The largest percentage drop in market share between 1993 and 1994 was

(a) 60. (b) 33.3.

(c) 50. (d) 20.

(e) 45

75. The city where the number of products losing market share between 1993 and 1994 was minimum is

(a) Mumbai.

(b) Kolkata.

(c) Delhi.

(d) Chennai.

(e) Delhi and Chennai

76. The number of products which has a 100 per cent market share in the four metros in 1994 was

(a) 0. (b) 1.

(c) 2. (d) 3.

(e) Cannot be determined

77. Which of the following product(s) did not loose their market share in any of the four metros from 1993 to 1994 ?

(a) HD (b) CO

(c) MT (d) BN

(e) None of the products

Direction for questions 78 to 82: These questions are based on the table and information given below.

The following table gives production of foodgrains and area under cultivation from the year 1950 to 2000 for a country.

Year	Area million (hectares)	Production million (tonnes)
1950-51	97.32	50.82
1960-61	115.58	82.02
1970-71	124.32	108.42
1980-81	126.67	129.59
1990-91	127.84	176.39
1999-2000	123.31	199.06

78. During which year did the area under cultivation show the highest growth rate over the previous year?

(a) 60-61

(b) 70-71

(c) 80-81

(d) 50-51

(e) Cannot be determined

79. The average annual growth rate of production of foodgrains for the period 1950-51 to 1990-91 is

(a) 6.1%. (b) 7.3%.

(c) 62.5%. (d) 48.6%.

(e) 46.8%

80. Production per hectare for the year 1970-71 is

(a) 1.02 ton.

(b) 872 kg.

(c) 800 million kg.

(d) 0.950 ton.

(e) 827 kg.

81. If it is estimated that for the year 2000-2001, area under cultivation would decrease by 8 per cent and production would increase by 11 per cent over 90-91 figures, what would be the growth rate in production per hectare?

(a) 16.5% (b) 19.5%

(c) 20.6% (d) 15.9%

(e) Cannot be determined

82. In which decade did the average production per hectare show the highest growth rate compared to the previous decade?

(a) 50s (b) 80s

(c) 70s (d) 60s

(e) Cannot be determined

Level - 2

Directions for questions 83 to 87: Study the following table and answer the questions given below :

The table given below represents the total number of cases (in '000) examined and the percentage distribution of under nourished cases in different categories namely, Slight, Moderate and Advanced on the basis of the number of cases examined from the year 1986 to year 1993.

Nutritional State of Children					
Year	Number of Cases Examined (in '000)	Percentage of Under-nourished			
		Total	Slight	Moderate	Advanced
1986	1,015	15.50%	12.10%	2.70%	0.70%
1987	1,048	15.90%	12%	3%	0.90%
1988	1,071	14.90%	11.90%	2.50%	0.50%
1989	1,048	12.90%	10.80%	1.80%	0.30%
1990	1,023	12.20%	10.40%	1.60%	0.20%
1991	1,048	11.50%	10%	1.40%	0.10%
1992	1,063	9.90%	8.70%	1.10%	0.10%
1993	1,161	8.80%	7.80%	0.90%	0.10%

Number of cases may be in fractions and should be rounded off in answering the questions.

83. In the year 1989, what is the approximate number of cases found as "Slight" under-nourished?

(a) 11,300 (b) 19,000
(c) 1,13,000 (d) 1,18,000
(e) 1,19,000

84. Which of the following is the approximate difference between the number of "Total" under-nourished cases in 1986 from those in 1993?

(a) 1,46,000
(b) 10,000
(c) 45,000
(d) 55,000
(e) None of these

85. The percentage of which type of under-nourished category is decreasing successively over the years?

(a) Total
(b) Slight
(c) Moderate
(d) Advanced.
(e) Cannot be determined

86. In which of the following years, the number of "Advanced" under-nourished cases the lowest?

(a) 1990 (b) 1993
(c) 1992 (d) 1989
(e) 1991

87. In how many years from 1986-93, the number of "Total" under-nourished cases more than the average number of "Total" under-nourished cases?

(a) 3 years (b) 4 years
(c) 1 year (d) 2 years
(e) 5 years

Directions for questions 88 to 91: Read the given information and answer the questions based on it.

The table given below depicts the total fuel consumption and consumption of three main fuels in various states. The consumption of fuel is given in million gallon and the number of vehicles in a particular state is given in thousands. All the fuel is consumed in powering the vehicles of that state while the remaining consumption comes under 'Others' category. You may use data given in a particular question for subsequent questions.

State	Total Fuel Consumption (in million gallons)	Petrol	Diesel	Gasoline	Number of vehicles in '000
Punjab	29050	8095	7995	8095	800
Haryana	77650	13560	26075	24965	1100
Uttar Pradesh	28745	6087	10475	8594	300
Uttranchal	80850	26670	29775	23750	1200
Goa	29570	5970	8965	9876	600
Andhra Pradesh	49050	18050	10990	11692	700
Chattisgarh	48050	11472	17225	11275	690
Kerala	79550	27500	26785	24500	1100
Tamil Nadu	50950	13595	14950	15036	500
Gujrat	60573	16985	17956	15786	1300
Rajasthan	45869	12976	11987	18765	600
Himachal Pradesh	55894	12567	13958	19467	700

Note : Data given in a particular question can be used in subsequent questions.

88. Which state has the highest consumption of fuel per vehicle in a year?

(a) Uttar Pradesh

(b) Kerala

(c) Uttranchal

(d) Goa

(e) Cannot be determined

89. Among the given states, which one has the highest consumption of fuel under the fuel consumption of 'Others' category?

(a) Fourth largest state in Gasoline consumption.

(b) Third largest state in Petrol consumption.

(c) Third largest state in Diesel consumption.

(d) Fourth largest state in total fuel consumption.

(e) None of the above

90. What is the difference in the consumption of Diesel for two states, one which has the highest consumption of Gasoline and the other which has the highest consumption of Petrol ?

(a) 720 million gallon

(b) 710 million gallon

(c) 3700 million gallon

(d) 375 million gallon

(e) 650 million gallon

91. Which state has the highest consumption per vehicle of Diesel ?

(a) Tamil Nadu

(b) Uttar Pardesh

(c) Chattisgarh

(d) Himachal Pradesh

(e) Cannot be determined

Directions for questions 92 to 96: Read the given information and answer the questions based on it.

Naha Nagar Telecom Nigam Ltd. issued a total of 1,26,653 telephone connections during the year 2006-2007, in 8 regions namely Munir Nagar, Chotupur, Daulat Ganj, Kirki Ganj, Hero Nagar, Bholapur, Chandipur and Luke Ganj which are disguised in the table as A, B, C, D, E, F, G and H (not necessarily in that order).

It is known that the total connections issued in Luke Ganj and Munir Nagar taken together equal 30,860.In Kirki Ganj second highest connections were issued. The number of connections issued in Chandipur is immediately more than the connections issued in Hero Nagar but immediately less than the connections in Bholapur. The number of connections issued in Daulat Ganj is more than the connection issued in Chotapur and Munir Nagar.

Regions	Number of Connections issued
A	32,155
B	21,571
C	21,272
D	21,020
E	9,840
F	8,707
G	6,591
H	5,497

92. What is the difference in the number of connections issued in Daulat Ganj and Chandipur?

(a) 10,584 (b) 28,246

(c) 25,564 (d) 18,624

(e) 14,242

93. Which among the following shows the approximate percentage of number of connections issued in Bholapur to the total number of connections issued?

(a) 6.8% (b) 10.62%

(c) 15.41% (d) 24.6%

(e) 12.24%

94. The number of connections issued in Kirki Ganj are approximately what fraction of the total number of connections issued?

(a) $\frac{1}{2}$ (b) $\frac{3}{4}$

(c) $\frac{1}{5}$ (d) $\frac{2}{3}$

(e) $\frac{3}{5}$

95. What is the difference between the number of connections issued in Daulat Ganj and Munir Nagar?

(a) 8,707 (b) 25,467

(c) 98,765 (d) 13.824

(e) Cannot be determined

96. What is the average of the number of connections issued in Luke Ganj and Munir Nagar?

(a) 15,430 (b) 12,460

(c) 13,580 (d) 18,240

(e) Cannot be determined

Direction for questions 97 to 100: These questions are based on the following information.

"Kya-Kya" is an island in the South Pacific. The inhabitants of "Kya-Kya" always answer any question with two sentences, one of which is always true and the other is always false.

97. You are walking on a road and come to a fork. You ask the inhabitants Ram, Laxman and Lila, ``Which road will take me to the village?''

Ram says, "I never speak to strangers. I am new to these parts".

Laxman says, "I am married to Lila. Take the left road".

Lila says, "I am married to Ram. He is not new to this place".

Which of the following is true ?

(a) Left road takes you to the village.

(b) Right road takes you to the village.

(c) Lila is married to Laxman.

(d) Both (a) and (b)

(e) Both (b) and (c)

98. You find that your boat is stolen. You question three inhabitants of the island and they reply as follows:

John says, "I didn't do it. Mathew didn't do it".

Mathew says, "I didn't do it. Krishna didn't do it".

Krishna says, "I didn't do it. I don't know who did it".

Who stole your boat ?

(a) John (b) Mathew

(c) Krishna (d) Either (a) or (c)

(e) Either (a) or (b)

99. You want to speak to the chief of the village. You question three inhabitants, Amar, Bobby and Charles. Only Bobby is wearing a red shirt.

Amar says, "I am not Bobby's son. The chief wears a red shirt".

Bobby says, "I am Amar's father. Charles is the chief".

Charles says, "The chief is one among us. I am the chief".

Who is the chief ?

(a) Amar (b) Bobby

(c) Charles (d) Either (a) or (c)

(e) Either (a) or (b)

100. There is only one pilot on the island. You interview three men Kirk, Leena and Mirna. You also notice that Kirk is wearing a cap.

Mirna says, "Leena's father is the pilot. Leena is not the priest's daughter".

Kirk says, "I am the priest. On this island, only priests can wear caps".

Leena says, "I am the priest's daughter. Kirk is not the priest".

Which of the following is true ?

(a) Leena is not Kirk's daughter.

(b) Kirk is the pilot.

(c) Mirna is the pilot.

(d) Leena is the priest.

(e) None of these

Direction for questions 101 to 104: Answer the questions based on the following table.

The XYZ company conducted two training programmes for their line and staff employees to develop their managerial abilities. The training programmes were on Decision Making and Financial Management. The following table gives the number of line and staff employees who attended these workshops, classified as per the length of employment.

Length of employment	Programme attended						Total No. of employees including non participants	
	Decision Making		Financial Management		Both			
	Line	Staff	Line	Staff	Line	Staff	Line	Staff
Less than 3 years	40	30	30	20	10	15	100	120
3 to 5 years	60	20	80	60	30	15	140	90
More than 5 years	50	40	40	50	30	20	200	160

101. What is the number of line employees with 3 to 5 years of employment who have not attended the programme on Financial Management?

(a) 30 (b) 20

(c) 60 (d) 50

(e) 40

102. What is the number of employees with less than three years of employment who attended only one of the programmes?

(a) 120 (b) 85

(c) 25 (d) 95

(e) 70

103. What per cent of the employees with more than five years of employment did not attend either workshop? (Select the value nearest to the correct value)

(a) 64% (b) 86%

(c) 50% (d) 14%

(e) 48%

104. How many of the employees who attended at least one programme have more than 5 years of employment?

(a) 180 (b) 130

(c) 230 (d) 136

(e) 145

Directions for questions 105 to 108: Refer to the data below and answer the questions based on it.

Darco Ltd. produces two products : Comedy max and Chanderlok. The cost of producing product is summation of manufacturing cost and advertising cost. Manufacturing cost is a direct function of number of items. Advertising cost is budgeted at the beginning of the year and remains the same.

The following table gives the cost incurred on production of Comedy max and Chander lok with respect to number of units.

Number of units	Comedy max (cost)	Chander lok (cost)
100	Rs. 1,200	Rs. 9,200
200	Rs. 2000	Rs. 10,800

In addition to individual costs on Comedy max and Chanderlok, Darco Ltd. also incurs some fixed costs on account of administrative expenses. The plant has a capacity to produce 1000 units of Comedy max and 2000 units of Chander lok.

105. What is the total advertising cost of Comedy max and Chanderlok?

(a) Rs. 6000 (b) Rs. 4,000
(c) Rs. 8,000 (d) Rs. 12,000
(e) Rs. 10,000

106. What is the total cost incurred by Darco Ltd. on administrative expenses, assuming 100 units each of Comedy max and Chanderlok are produced and total expenditure is Rs. 11,000?

(a) Rs. 400 (b) Rs. 600
(c) Rs. 800 (d) Rs. 1,000
(e) Rs. 1,100

107. What is the total cost incurred by Darco Ltd. when its plant operates at full capacity?

(a) Rs. 37,800 (b) Rs. 39,600
(c) Rs. 40,000 (d) Rs. 48,600
(e) Rs. 52,400

108. What is the total advertising cost when 200 units of Camedy max and 300 units of Chanderlok are produced?

(a) Rs. 8,000
(b) Rs. 10,000
(c) Rs. 7,000
(d) Rs. 6,000
(e) Rs. 11,000

Directions for questions 109 to 113: Answer the questions on the basis of the information given below.

Upon noticing the sudden increase in absenteeism in an office, the concerned HR manager hired a consultant to analyse the employees' attendance data. The data was regarding four particular employees of the company and the number of days on which they were physically present in the company in a month consisting of 30 days. The HR manager did not provide the consultant with direct information on the number of days on which these four particular employees were present. Instead, he chose two of these four particular employees at a time, added the number of days on which they had been present and collated the six numbers so obtained in column-figures in descending order. Just before going through the data, the consultant spilled his coffee onto it because of which the column figures numbered 3, 4 and 5 became illegible. The table, after the spilling of coffee, started appearing as shown below.

Columns	1	2	3	4	5	6
Sum of number of days on which each employee was present, taken two at a time	51	49				40

Number of days on which the four particular employees were absent in that month are distinct integers. There is no such day in this particular month on which all the four particular employees were absent.

109. Column figure numbered 5 actually should read

(a) 41 (b) 42
(c) 44 (d) 45
(e) 46

110. If one of the illegible column figures reads 45, then which of the following is true?

(a) One of the other illegible column figures reads 46.
(b) One employee was present on only 25 days of the month.
(c) One employee was present on only 23 days of the month.
(d) One employee was present on only 21 days of the month.
(e) One employee was present on only 19 days of the month.

111. Eksa was the second employee, if the 4 employees are arranged in the ascending order of the days on which they were present in the month. What could have been the maximum possible number of days on which Eksa was present?

(a) 25 (b) 24
(c) 23 (d) 22
(e) 21

112. When the consultant called up the HR manager and told his problem, all that the HR manager could remember was that the column figure numbered 3 is the addition of the number of days for the two employees who were present on the maximum and the minimum possible number of days. Which of the following is column figure numbered 3?

(a) 43 (b) 44

(c) 45 (d) 46

(e) 47

113. Which of the following can never be the number of days on which exactly three of the four particular employees were present in that month?

(a) 2

(b) 4

(c) 5

(d) 11

(e) 20

Directions for questions 114 to 118: Answer the questions on the basis of the information given below.

There are 20 baskets (numbered from 1 to 20), each containing different number of oranges. 12 friends namely A, B, C, D, E, F, G, H, I, J, K and L are asked to count the number of oranges in each of the 20 baskets. The following table provides information about the number of oranges in each basket as counted by each of the friends. It was found out that the number of baskets for which the friends correctly counted the number of oranges is 2, 4, 5, 6, 7, 8, 10, 11, 14, 16, 17 and 20 not necessarily in any particular order. The number of baskets for which A, B, C, D, E, F, G, H, I, J, K and L correctly counted the number of oranges is denoted by a, b, c, d, e, f, g, h, i, j, k and l respectively.

	Number of oranges in different baskets																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	8	3	18	13	23	27	1	8	9	16	31	52	44	17	10	25	21	42	5	11
B	8	3	15	12	23	27	1	6	9	18	31	52	44	19	10	25	21	42	5	11
C	8	4	18	13	21	27	1	6	10	16	31	52	43	17	11	25	21	42	5	11
D	8	3	15	13	21	26	2	7	9	16	33	53	42	17	10	23	20	43	6	11
E	8	2	15	13	23	27	2	6	10	14	31	53	42	17	10	25	20	43	6	13
F	9	3	18	14	24	27	1	7	9	14	33	52	42	19	11	23	20	42	5	12
G	9	4	15	14	21	26	1	8	9	18	32	54	43	17	11	23	21	44	5	11
H	8	3	18	14	23	26	2	8	9	18	31	53	42	19	12	23	20	44	6	12
I	8	3	15	13	23	27	1	6	9	16	31	52	42	17	10	25	21	42	5	11
J	9	4	18	14	21	26	2	8	10	16	32	54	42	19	11	23	20	43	6	12
K	8	3	19	14	24	26	1	7	10	14	32	54	43	19	11	25	20	43	6	12
L	9	2	18	13	23	26	2	6	9	16	32	53	43	19	12	23	20	44	6	12

114. Which of the following is incorrect?

(a) c > d > g > h > k (b) i > a > b > k > j

(c) g < f > k < l < d (d) c > h < f < g > l

(e) b < a < i > e > d

115. Which of the following is correct?

(a) a < i > h > d (b) a > i > b < l

(c) k > j < g < h (d) h < g > k < j

(e) d < e < b > c

116. For how many baskets, exactly 7 friends counted the number of oranges incorrectly?

(a) 5 (b) 6

(c) 7 (d) 8

(e) 9

117. How many times the number of oranges in any basket was counted incorrectly by any of the friends?

(a) 121 (b) 120

(c) 123 (d) 127

(e) 129

118. For how many baskets, exactly 6 friends counted the number of oranges correctly?

(a) 10 (b) 9

(c) 8 (d) 7

(e) 6

Directions for questions 119 to 123: Answer the questions on the basis of the information given below.

In a small company, there are 10 employees viz. P, Q, R, S, T, U, V, W, X, and Y, each one in a different grade. Sequentially grade 1 is the lowest grade and grade 10 is the highest. Grades 1 to 10 were further divided into three categories: grade 1 to 3 in category I; grade 4 to 6 in category II and grade 7 to 10 in category III. Each employee had a certain part of their salary package as variable pay. However, they are eligible to get only a certain percentage of their variable pay. That particular percentage is decided according to the rating assigned to them after annual performance appraisal. The assigned ratings are from 1 to 5 where sequentially rating 1 is the lowest and rating 5 is the highest. In Table - 1, the

percentage of variable pay-out eligibility is illustrated according to the rating received in different grades and categories.

Table – 1

Category	Grade	Rating	Percentage of variable pay-out
Category I	1 to 3	1 & 2	0
		3	50
		4	90
		5	130
Category II	4 to 6	1 & 2	0
		3	45
		4	70
		5	110
Category III	7 to 10	1 & 2	0
		3	40
		4	60
		5	100

In the Table - 2, partial data regarding the grade, percentage of variable pay-out and annual performance rating of 10 employees are given.

Table – 2

Employees	Grade	Percentage of varibal pay-out	Annual performance rating
P		40	
Q	4		2
R		0	
S	1		4
T			
U		70	
V	7		
W			
X			5
Y	9	0	

Employees belonging to a particular category received distinct annual performance rating. For example, if P, Q and R belong to category I, then they must have received distinct annual performance rating among 1 to 5.

119. If X is in grade 8, and then what could be the numerically maximum grade of T?

(a) 10 (b) 6

(c) 5 (d) 3

(e) 2

120. If T received an annual performance rating of '4', what could be the maximum percentage of variable pay-out received by W?

(a) 130 (b) 110

(c) 100 (d) 60

(e) Cannot be determined

121. Find the minimum possible number of employees, who may have received an annual performance rating of '3'?

(a) 0 (b) 1

(c) 2 (d) 3

(e) Cannot be determined

122. If T and W received an annual performance rating of '3', then which of the following employees definitely belong to the same category?

(a) R, S, W (b) P, V, X, Y

(c) R, S, T (d) Q, U, W

(e) Cannot be determined

123. If 'V' received an annual performance rating of '5', then how many distinct grades could 'T' possibly belonged to?

(a) 2 (b) 4

(c) 5 (d) 6

(e) 7

Direction for questions 124 to 128: Answer these questions based on the following information.

The table below gives the unit cost of transportation of material with respect to three products (A, B and C) manufactured by PQR Ltd to five ware houses (W_1, W_2, W_3, W_4 and W_5). The production figures of the three products A, B and C are 240 units, 1200 units and 840 units respectively.

Products	Transportation cost per unit (Rs.)				
	W_1	W_2	W_3	W_4	W_5
A	1.5	1.6	2.4	2	1
B	3	3.2	3	2.8	4
C	1.8	1.5	2	1.6	1.1

124. What is the total cost of transportation of all the units of all the products to W_1 ?

(a) Rs. 5,278 (b) Rs. 5,472

(c) Rs. 5,274 (d) Rs. 5,742

(e) Rs. 5,724

125. If 48 units of A are transported to each of the warehouses what is the average unit cost of transportation?

(a) Rs. 1.8

(b) Rs. 1.6

(c) Rs 1.65

(d) Rs. 1.75

(e) Rs. 1.7

126. Which of the following would involve least cost ?

(a) Transporting 300 units of B to W_4.

(b) Transporting 200 units of B to W_1.

(c) Transporting 300 units of C to W_2.

(d) Transporting 400 units of C to W_5.

(e) None of these

127. The production of B is more than that of A by what percentage ?

(a) 250% (b) 300%

(c) 500% (d) 400%

(e) 225%

128. By how much is the average transportation cost of B more as compared to that of A ?

(a) Rs. 1.8 (b) Rs. 1.5

(c) Rs. 1.6 (d) Rs. 1.4

(e) Rs. 1.9

Directions for questions 129 to 133: Answer the questions on the basis of the information given below.

In a summer camp ten events are organised, which are categorised among five groups - Adventure Sports, Motor Sports, Water Sports, Underwater Activities and Extreme Sports. Each event of Adventure Sports, Motor Sports and Water Sports is evaluated out of 100. Events of Underwater Activities are evaluated out of 50 and events of Extreme Sports are evaluated out of 200. The final score of the student is calculated in the following manner. First, the group scores, out of 100, are obtained by averaging points in the events within the group. The final score is the simple average of the group scores. The cumulative sum of points for each students is the sum of points in all the events. The data for the top ten student's is given below. Some data has been intentionally removed from the table.

Students	Adventure Sports			Motor Sports	Water Sports		Underwater Activities		Extreme Sports		Final Score
	Bungee Jumping	Paragliding	Rock Climbing	Motor Racing	Swimming	Water Diving	Scuba Diving	Fishing	Rappelling	Kayaking	
A	91	87	92	97	96	94	47	43	186	190	93.2
B	92	86	95	92	??	94	46	46	189	187	??
C	93	82	92	94	94	98	49	48	180	192	93.8
D	94	88	88	98	93	93	43	42	187	193	92.2
E	97	95	93	90	95	93	42	44	184	184	91.4
F	95	93	97	96	98	98	41	49	191	185	94.6
G	94	97	91	92	94	94	46	42	186	190	??
H	91	87	98	94	95	93	41	48	183	185	92.2
I	99	89	94	98	96	94	44	46	182	190	94
J	96	90	90	94	98	90	47	43	192	192	94.4

129. If B and G have same final score, then find B's points in Swimming.

(a) 91 (b) 92

(c) 93 (d) 94

(e) 96

130. If D's cumulative sum of points is increased by 20, such that he has maximum possible final score, then find the maximum possible points that D can have in Water Diving.

(a) 94 (b) 98

(c) 92 (d) 91

(e) 96

131. What can be the maximum possible increase in cumulative sum of points of I such that his final score increases by 2?

(a) 37 (b) 27

(c) 31 (d) 24

(e) 42

132. If C's cumulative sum of points is increased by 32, then which of the following statements is definitely false?

(a) His maximum possible final score can be 97.4.

(b) His final score can increase by exactly 2 points.

(c) C's final score can be the highest among the given students.

(d) C can have equal average score in all groups.

(e) For at least 1 group C's average score cannot be 100.

133. Which of the following pair of friends has earned more points than their individual final score in the maximum possible number of events?

(a) C, G (b) G, H

(c) C, E (d) E, F

(e) F, H

Directions for questions 134 to 138: Answer the questions on the basis of the information given below.

	PHYSICS				CHEMISTRY				MATHS				
	I	II	III	S1	I	II	III	S2	I	II	III	S3	S
A	13	12				11	11		8	9			36
B	20			16			1	9			20		40
C	18			15	11			15			5		42
D		14				19		16	14		3	9	
E		20	2		15			16		18	5		42
F	17	17	5		18	20			16		7		43
G	19			16	4	19	19			20			48
H	10	16			6	11			19			15	

The table given above, shows the marks secured by eight students in an entrance examination conducted by a reputed engineering college. Their were only three subjects viz. Physics, Chemistry and Maths having three papers viz. I, II and III in each of the subjects. Each paper was of 20 marks. Furthermore, S1, S2 and S3 represents the average marks obtained in each of the subjects and S represents the sum of S1, S2 and S3. All students appeared in all the papers and no student has scored zero marks in any of the given papers. Following information is also available:

I. Average marks of all students in Physics I, Physics III, S1, S2 and Maths III papers are 16, 12, 14, 14 and 10 respectively.

II. Except the marks already mentioned in the table no student has secured 20 out of 20 in any of the papers.

III. A and H secured equal average marks, a prime number, in Physics.

IV. G scored a total of 47 marks in Physics II, III and Maths I paper.

V. Average marks secured by A and H in Chemistry are distinct prime numbers.

VI. Marks secured by the students in all the papers and the values of S1, S2 and S3 are always integers.

134. Which of the following can never be the sum of the marks secured by A and H in Physics III paper along with E in Physics I paper?

(a) 29 (b) 32

(c) 35 (d) 41

(e) 44

135. The sum of average marks secured by F and H in Chemistry is

(a) 29 (b) 28

(c) 23 (d) 22

(e) Cannot be determined

136. Which of the following can be the average marks secured by D in Physics?

(a) 12 (b) 13

(c) 16 (d) 17

(e) 18

137. The marks secured by F in Maths II paper is

(a) 11 (b) 13

(c) 16 (d) 19

(e) Cannot be determined

138. What is the sum of marks secured by A and H in Maths III paper?

(a) 38 (b) 32

(c) 28 (d) 24

(e) Cannot be determined

Directions for questions 139 to 143: Answer the questions on the basis of the information given below.

Each of the five persons namely Rohan, Deepak, Tripti, Sonal and Tarun completed 200, 180, 140, 150 and 240 units of work. The number of days taken by Rohan, Deepak, Tripti, Sonal and Tarun to complete the mentioned units of work is 12, 10, 8, 10 and 12 days respectively. The following table provides information about the units of work completed by each of these mentioned persons after every day.

	Number of Units				
After	Rohan	Deepak	Tripti	Sonal	Tarun
1 day	10	12	5	20	18
2 days	22	32	15	25	20
3 days	24	50	25	40	44
4 days	40	52	50	50	48
5 days	60	84	80	65	50
6 days	68	120	96	80	95
7 days	140	140	108	100	100
8 days	148	156	140	125	112
9 days	176	172	140	140	115
10 days	180	180	140	150	120
11 days	184	180	140	150	160
12 days	200	180	140	150	240

139. Out of the mentioned days, what is the maximum possible units of work completed by all the five persons on any single day?

(a) 123 (b) 124

(c) 129 (d) 131

(e) 130

140. On which of the following days the total units of work completed by all the mentioned persons is less than the average units of work completed per day by all the mentioned persons?

(a) Day 3 (b) Day 8

(c) Day 5 (d) Day 12

(e) None of these

Additional Information for questions 141 and 142:

A person is said to be more efficient than the other person only if he/she has done more number of units of work than him/her on at least seven out of the mentioned days.

141. Tarun is more efficient than which of the following persons?

(a) Deepak (b) Sonal

(c) Rohan (d) Both (1) and (2)

(e) Both (1) and (3)

142. Out of the mentioned five persons, how many persons are more efficient than exactly two persons?

(a) 4 (b) 2

(c) 1 (d) 0

(e) 3

143. On how many days the number of units of work completed by Sonal is more than at least one but not more than two out of the mentioned persons?

(a) 5 (b) 8

(c) 6 (d) 7

(e) 9

Direction for questions 144 to 147: These questions are based on the table and information given below.

Bankatlal works x hours a day and rests y hours a day. This pattern continues for one week, with an exactly opposite pattern next week, and so on for four weeks. Every fifth week he has a different pattern. When he works longer than he rests, his wage per hour is twice what he earns per hour when he rests longer than he works. The following are his daily working hours for the weeks numbered 1 to 13.

	1st week	5th week	9th week	13th week
Rest	2	3	4	-
Work	5	7	6	8

A week consists of six days and a month consists of 4 weeks.

144. If Bankatlal is paid Rs. 20 per working hour in the 1st week, what is his salary for the 1st month?

(a) Rs. 1,760

(b) Rs. 1,440

(c) Rs. 1,320

(d) Rs. 1,680

(e) 1,230

145. Referring to the data given in Q.1, Bankatlal's average monthly salary at the end of the first four months will be

(a) Rs. 1,780

(b) Rs. 2,040

(c) Rs. 1,830

(d) Rs. 1,680

(e) Rs. 1,870

146. The new manager Khushaldas stipulated that Rs. 5 be deducted for every hour of rest and Rs. 25 be paid per hour starting 9th week, then what will be the change in Bankatlal's salary for the 3rd month? (Hourly deductions are constant for all weeks starting 9th week)

(a) Rs. 540

(b) Rs. 480

(c) Rs. 240

(d) Rs. 120

(e) Rs. 210

147. Using the data in the previous questions, what will be the total earning of Bankatlal at the end of sixteen weeks.

(a) Rs. 7,200 (b) Rs. 7,800

(c) Rs. 8,400 (d) Rs. 9,600

(e) Rs. 6,900

Level - 3

Directions for questions 148 to 152: Answer the questions on the basis of the information given below.

In the JIFA awards, 14 movies are nominated under 5 different groups namely Art, Action, Romantic, Cartoon and Comedy. Each of the 10 judges evaluated each of the 14 movies and gave points to each movie out of 100. The maximum possible number of points given by any judge to any movie is 100. Based upon the points given by each judge to the 14 movies, a final score given by each judge is calculated in the following manner. For each judge, first the group scores of each group is obtained by averaging the number of points given to each movie within the group by that particular judge. The final score given by each judge is the average of his group scores. The following table provides information about the number of points given by each judge to each of the 14 movies. The number of points given by each judge to each of the movies Golmaal and Bhagam Bhag is missing. Instead the average of the number of points given by each judge to each of the movies Golmaal and Bhagam Bhag is listed down in the table.

Judge	Art		Action			Romantic			Cartoon			Comedy		Final Score
	Page 3	Black Friday	300	Diehard	Blood Diamond	Notting Hill	RHTDM	DDLJ	Finding Nemo	Ice Age	Shrek	Golmaal and Bhagam Bhaag	Masti	
Madhur	93	91	88	89	90	80	88	90	90	95	91	85	91	89.2
Prasoon	96	94	89	90	94	82	86	93	94	97	91	88	94	91.4
Aditya	90	96	92	92	92	84	85	94	93	98	94	86	98	91.8
Karan	93	95	88	87	92	86	87	94	92	92	98	88	94	91.2
Yash	94	92	94	86	90	88	88	94	97	91	91	92	95	91.8
Sorcerer	97	91	98	90	94	85	84	95	97	90	92	89	92	91.8
Basu	98	94	96	92	97	83	82	96	94	94	94	88	91	92.2
Anubhav	92	92	92	92	98	82	88	91	91	93	95	86	95	91
Vidhu	94	90	93	93	96	80	90	91	90	87	93	89	98	91
Rakesh	94	88	94	99	92	82	94	??	94	95	90	88	91	??

148. If the group score given to Romantic movies by Rakesh is equal to the group score given to Comedy movies by Karan, then what is the final score given by Rakesh?

(a) 91.8 (b) 91.4

(c) 91.2 (d) 91.6

(e) 90.6

149. For each movie and for each judge, let 'Y' be the absolute difference between the number of points given to that particular movie and the maximum possible number of points given by that particular judge to any of these 14 mentioned movies. If 'X' is the sum of all the possible values of 'Y', then what is the maximum possible value of 'X' for Basu?

(a) 117 (b) 113

(c) 111 (d) 107

(e) 113

150. If each judge has to give 100 points to exactly one movie in each group, then which judge among the following gets a minimum possible increase in the final score given by them?

(a) Aditya (b) Prasoon

(c) Sorcerer (d) Basu

(e) Madhur

151. If the number of points given to exactly two movies from each group is used to determine the final score given by each judge, then what is the final score given by Anubhav?

(a) 92.2 (b) 89.4

(c) 91.6 (d) 90.2

(e) Cannot be determined

152. Given that the aggregate number of points given by all the judges to DDLJ is equal to the aggregate number of points given by all the judges to Golmaal. If all judges gave equal number of points to Golmaal, then which of the following can be the group score given to Romantic movies by Rakesh?

(a) 86 (b) 87

(c) 88 (d) 89

(e) 81

Directions for questions 153 to 157: Answer the questions on the basis of the information given below.

In Tekishi's Castle, five events viz. Bridge the Gap, Dragon Lake, Fortress, Giant Maze and Muddy Waters (in that order only) are organised one after the other from Monday to Friday. On each day all the mentioned events take place. However, on a particular day a participant starts from Bridge the Gap and moves to the next event only when he/she successfully completes the previous event. On each day participants keep moving to the next event till they reach Muddy waters or they are engaged in those events till they are not able to successfully complete any one of the events. All the participants reaching the event 'Muddy Waters' successfully complete it. Those participants, who are unable to successfully complete an event in a particular day, are termed as 'rollover participants' for that day. Rollover participants for a particular day, return the next day to participate in the same event which they were not able to successfully complete the previous day. New participants coming each day are termed as 'fresh participants'. The following table gives the data about the number of participants in various events from Monday to Friday in a particular week. There were no rollover participants from the preceeding week.

	Bridge the Gap	Dragon Lake	Fortress	Giant Maze	Muddy Waters
Monday	25	23	20	14	11
Tuesday	28	22	24	26	20
Wednesday	20	18	13	13	13
Thursday	25	27	20	16	12
Friday	22	18	22	24	22

153. Which of the following accommodated the maximum possible number of rollover participants?

(a) Dragon Lake on Thursday

(b) Bridge the Gap on Tuesday

(c) Bridge the Gap on Friday

(d) Bridge the Gap on Wednesday

(e) Dragon Lake on Wednesday

154. What can be the maximum possible ratio of number of fresh participants reaching 'Muddy Waters' on Tuesday to the number of fresh participants in 'Bridge the Gap' on Tuesday?

(a) 7 : 9 (b) 9 : 14

(c) 5 : 7 (d) 10 : 13

(e) 9 : 13

155. Rollover participants on Tuesday only are allowed to participate again only a day after the immediately following day and all the other conditions remain the same. Find the sum of number of rollover participants in all the events on Thursday.

(a) 29 (b) 30

(c) 22 (d) 25

(e) 28

156. What is the maximum possible number of total rollover participants on any day?

(a) 21 (b) 19

(c) 25 (d) 23

(e) 22

157. Which event showed the maximum possible 'Variation' (Maximum number of rollover participants among the given five days – Minimum number of rollover participants among the given five days) during the given week?

(a) Giant Maze

(b) Bridge the Gap

(c) Fortress

(d) Dragon Lake

(e) Cannot be Determined

Directions for questions 158 to 162: Answer the questions on the basis of the information given below.

Larry has a huge collection of shirts. The shirts with him are of one or the other of the four brands namely Caterpillar, Diesel, Lacoste and Dockers. The color of the shirts with him is either black or white. Out of the shirts with him, Larry has bought only few of them whereas the rest are gifted to him by one or the other of his six friends namely Anjana, Ravneet, Urvashi, Heena, Simar and Sarah. Larry does not know the exact number of shirts gifted to him but he knows that the number of white shirts of each brand gifted to him by each of his mentioned friends is at least 3 and at most 18. Further, the number of black shirts of each brand gifted to him by each of his mentioned friends is at least 7 and at most 25.

Larry asked his mother to help him determine the number of shirts gifted to him by each of his mentioned friends. In turn Larry's mother provided him with the information listed in the table given below.

	Number of Shirts							
	Caterpillar		Diesel		Lacoste		Dockers	
	Black	White	Black	White	Black	White	Black	White
Anjana	> 9	< 4	> 17	> 8	< 11	< 7	< 23	> 10
Ravneet	> 18	< 6	< 24	< 9	> 10	> 12	> 14	< 10
Urvashi	< 21	> 10	> 14	< 7	< 19	> 9	> 10	< 12
Heena	> 15	< 9	> 19	< 6	< 21	< 13	< 18	< 5
Simar	> 9	< 4	< 19	> 14	< 8	< 5	> 12	> 12
Sarah	< 15	< 9	> 20	< 7	< 8	> 14	> 23	< 5

158. Let the number of shirts of brand Caterpillar gifted to Larry by Sarah be 'C' and the number of shirts of brand Lacoste gifted to Larry by Urvashi be 'L'. If $L > 3 \times C$, then which of the following can be a value of 'C'?

(a) 10 (b) 11

(c) 12 (d) Both (a) and (b)

(e) (a), (b) and (c)

159. If out of the black shirts gifted to Larry by Anjana, Urvashi and Simar the number of shirts of brand Lacoste is 4 more than the number of shirts of brand Dockers, then what is the number of black shirts of brand Dockers gifted to Larry by Simar?

(a) 17 (b) 13

(c) 19 (d) 25

(e) Cannot be determined

160. Out of the white shirts gifted to Larry by Ravneet, Heena and Sarah the number of white shirts of brand Caterpillar is definitely less than the number of white shirts of brand(s)

(a) Diesel (b) Dockers
(c) Lacoste (d) Both (b) and (c)
(e) None of these

161. If the total number of shirts with Larry is 750 and if the total number of shirts bought by Larry is same as the total number of shirts gifted to him by Anjana, then the total number of shirts with Larry that are neither bought by him nor gifted to him by Anjana is at least

(a) 501 (b) 499
(c) 495 (d) 500
(e) 496

162. If the total number of shirts of each of the mentioned brands gifted to Larry by Urvashi and Simar is the same, then which of the following can be the total number of shirts gifted to Larry by Urvashi and Simar?

(a) 184 (b) 148
(c) 192 (d) 196
(e) 158

Directions for questions 163 to 166: Answer the questions on the basis of the information given below.

Seven nodes in an integrated circuit are interconnected with each other such that an input signal can flow from any node to every other node. No signal is allowed to retrace its path and the signal cannot travel through the same node more than once. All signals reaching the node 'Y' is said to reach its destination and hence cannot travel further. All the signals travel at a speed of 5 nano-meter per mili-second through the given network.

The following table illustrates the minimum and maximum distance between any two nodes in nano-meter (*nm*). For example, the minimum distance between the nodes 'N' and 'R' is 4 *nm* and the maximum distance to be travelled without violating any condition to reach 'R' from 'N' (or *vice-versa*) is 11 *nm*. First column of the table tabulates the number of paths emerging from or converging at a particular node.

Paths	Nodes	A	M	N	P	R	X	Y
3	**A**	0	3, 12	1, 10	2, 13	5, 11	8, 19	12, 26
4	**M**		0	3, 8	5, 11	2, 11	11, 17	10, 24
4	**N**			0	2, 11	4, 11	8, 17	12, 26
5	**P**				0	3, 12	6, 6	10, 25
4	**R**					0	9, 18	8, 25
2	**X**						0	7, 31
4	**Y**							0

163. An input signal emerging from 'P' reaches 'R' tracing the longest possible path. How many intermediate nodes the signal must pass through?

(a) 2 (b) 3
(c) 4 (d) 5
(e) 6

164. What is the path a signal must trace if it reaches 'X' to 'Y' through the longest path?

(a) X – P – A – N – R – M – Y
(b) X – P – A – M – Y
(c) X – P – N – A – M – Y
(d) X – P – N – M – R – Y
(e) X – P – R – N – A – M – Y

165. If no signal can pass through the node 'P', then what is the length of the shortest path (in *nm*) from 'A' to 'Y'?

(a) 12 (b) 13
(c) 14 (d) 16
(e) 17

166. Which of the following can never be the time taken by an input signal to reach 'Y' from 'N'?

(a) 2.6 mili-second (b) 2.8 mili-second
(c) 3.6 mili-second (d) 4.2 mili-second
(e) 4.6 mili-second

167. If a device is installed at node 'N' which delays the passing signal by 0.4 mili-second, then in how many of the following cases, the time taken by the signal to reach its destination will get affected?

(a) Siqgnal moving from 'X' to 'M' through the shortest path
(b) Signal moving from 'R' to 'Y' through the longest path
(c) Signal moving from 'A' to 'Y' through the shortest path
(d) Signal moving from 'P' to 'Y' through the shortest path

(a) 0 (b) 1
(c) 2 (d) 3
(e) 4

ANSWERS

1. (e)	**2.** (a)	**3.** (e)	**4.** (c)	**5.** (b)	**6.** (c)	**7.** (a)	**8.** (e)	**9.** (d)	**10.** (d)
11. (a)	**12.** (a)	**13.** (a)	**14.** (a)	**15.** (d)	**16.** (e)	**17.** (e)	**18.** (c)	**19.** (d)	**20.** (b)
21. (a)	**22.** (a)	**23.** (e)	**24.** (c)	**25.** (d)	**26.** (a)	**27.** (d)	**28.** (a)	**29.** (a)	**30.** (e)
31. (b)	**32.** (b)	**33.** (c)	**34.** (e)	**35.** (d)	**36.** (b)	**37.** (a)	**38.** (d)	**39.** (a)	**40.** (e)
41. (a)	**42.** (b)	**43.** (a)	**44.** (c)	**45.** (a)	**46.** (b)	**47.** (c)	**48.** (d)	**49.** (d)	**50.** (a)
51. (e)	**52.** (b)	**53.** (c)	**54.** (d)	**55.** (e)	**56.** (a)	**57.** (a)	**58.** (e)	**59.** (c)	**60.** (b)
61. (d)	**62.** (b)	**63.** (b)	**64.** (a)	**65.** (c)	**66.** (d)	**67.** (d)	**68.** (e)	**69.** (c)	**70.** (a)
71. (d)	**72.** (d)	**73.** (c)	**74.** (a)	**75.** (b)	**76.** (c)	**77.** (d)	**78.** (e)	**79.** (a)	**80.** (b)
81. (c)	**82.** (d)	**83.** (c)	**84.** (d)	**85.** (b)	**86.** (e)	**87.** (b)	**88.** (e)	**89.** (c)	**90.** (d)
91. (e)	**92.** (c)	**93.** (a)	**94.** (c)	**95.** (e)	**96.** (a)	**97.** (a)	**98.** (b)	**99.** (b)	**100.** (b)
101. (c)	**102.** (e)	**103.** (a)	**104.** (b)	**105.** (c)	**106.** (b)	**107.** (d)	**108.** (a)	**109.** (b)	**110.** (a)
111. (c)	**112.** (e)	**113.** (b)	**114.** (d)	**115.** (e)	**116.** (b)	**117.** (b)	**118.** (a)	**119.** (b)	**120.** (a)
121. (b)	**122.** (b)	**123.** (d)	**124.** (b)	**125.** (e)	**126.** (d)	**127.** (d)	**128.** (b)	**129.** (b)	**130.** (e)
131. (a)	**132.** (d)	**133.** (d)	**134.** (c)	**135.** (a)	**136.** (b)	**137.** (b)	**138.** (d)	**139.** (c)	**140.** (a)
141. (c)	**142.** (e)	**143.** (d)	**144.** (b)	**145.** (c)	**146.** (d)	**147.** (a)	**148.** (d)	**149.** (b)	**150.** (c)
151. (e)	**152.** (a)	**153.** (c)	**154.** (e)	**155.** (a)	**156.** (d)	**157.** (b)	**158.** (d)	**159.** (b)	**160.** (c)
161. (e)	**162.** (a)	**163.** (b)	**164.** (e)	**165.** (b)	**166.** (e)	**167.** (b)			

SOLUTIONS

Level - 1

1. e Number of people under 30 years of age cannot be determined because the data given is of respondents whose age is above 15 years but no information is given regarding the people between the age group of above 5 to 15 years.

2. a Total respondents in the age group above 20 till 30 = 66

Number of respondents whose favourite actor is SK = 24

Required percentage value $= \frac{24}{66} \times 100 = 36.36\%$

Percentage of respondents whose favourite actor is other than SK = 100% – 36.36% = 63.64%

3. e The answer to the question cannot be determined because with the data of a certain number of people we cannot conclude that who will cap the title.

4. c Total number of people surveyed

= 120 + 66 + 66 + 155 = 407

Total number of respondents in the age group above 20 till 30 = 66

Required percentage value $= \frac{66}{407} \times 100 = 16.21\%$

5. b Total number of respondents who like AB

= 12 + 8 + 53 = 73

Total number of respondents who like AK

= 14 + 10 + 10 = 34

Required percentage value

$= \frac{73-34}{34} \times 100 \approx 114\%$

6. c Total number of candidates

= (85+60) + (451+160)

= 145+611=756

Combined number of pass candidates

$= \frac{60}{100} \times 611 + \frac{70}{100} \times 145$

= 366.6 + 101.5 = 468 (approx.)

Hence, pass percentage

$= \frac{468}{756} \times 100 = 61.9 = 62\%$ (approx.)

7. a Percentage of girls in Business Management

$= \frac{25+25}{25+45+25+65} \times 100$

$= \frac{50}{160} \times 100 = 31.25\%$

Percentage of girls in Typewriting

$= \frac{23+20}{23+186+20+32} \times 100$

$= \frac{43}{261} \times 100 = 16.47\%$

Percentage of girls in Costing

$$= \frac{25+12}{25+120+12+58} \times 100$$

$$= \frac{37}{215} \times 100 = 17.20\%$$

Percentage of girls in Accounting

$$= \frac{12+3}{12+100+3+5} \times 100$$

$$= \frac{15}{120} \times 100 = 12.50\%$$

Hence, it was highest for Business Management course.

8. e Difference in number of students studying Business Management and Typewriting only

$$= 261 - 160 = 101$$

Hence, required percentage

$$= \frac{101}{261} \times 100 = 38.7 = 39\% \text{(approx.)}$$

9. d Number of students of Arts Faculty

$$= 70 + 209 + 145 + 112 = 536$$

Number of students of Arts Faculty doing only Costing = 25+120 = 145

Hence, required percentage

$$= \frac{145}{536} \times 100 = 27.05\%$$

10. d Total number of boys = 110 +218 +178+105=611

Total number of girls = 50 + 43 + 37 + 15=145

Difference between the number of boys and girls= 611–145 = 466

Hence, required percentage

$$= \frac{466}{145} \times 100 = 321.4\% = 321\% \text{ (approx.)}$$

11. a Using the first statement only. Second statement could imply that the figure ABCD is an isosceles trapezium.

12. a Jadeja's total = 164. Tendulkar's average = 57.5

Hence, the ratio is 1 : 2.86

13. a Tendulkar's points are 8 + 3 + 4 + 4 + 7 = 26

Dravid's points are 4 + 10 + 10 = 24. Others are below this.

14. a Since the total of 5 batsmen is more than 226 runs.

15. d Against England = 4.75

38/8 > 31/7

16. e Price in 1998 = Price in 1996 x (Index 1998/Index 1996) = Rs. 25.04

17. e Percentage increase in price between 1996 and 1998 = (Index1998 – Index1996) / Index1996

18. c Percentage price increase /kg of jute between 1996 and 1998 = (962 – 940)/940 = 2.34 %

19. d Price in 1997 = Price in 1969-70 × (Index1997/100) = Rs. 153

Price in 1998 = Rs. 153.66

∴ Increase = Rs. 0.66

20. b $\frac{37707 - 22113}{22113 \times 3} \times 100 = 23.5\%$

21. a Out of 22113, 3621 was gold reserve. Next year it fell and the year after that it did not reach the 1996 level even though total forex reserves shot up. Though in 1999 it was above 1996 level, yet the total forex reserves was much higher.

22. a By observation it is very obvious.

23. e 1996, in rupee terms it was 22113 x 30 = Rs. 663390 and in 1998 it was 29341× 40 = Rs. 11,73,640. The ratio is 1173640/663390 = 1.769

24. c 1998 → 60% of 25975 = 15585

1999 → 70% of 33470 = 23429

$$\% \text{ increase} = \frac{23429 - 15585}{15585} \times 100 = 50.33\%$$

25. d We know that : (Dividends + Retained earnings) = (Profit Before Tax) – Tax.

Tax = (Profit Before Tax) – (Dividends + Retained earnings).

	1991	1992	1993	1994
Profit Before Tax	315	170	525	790
Dividends + Retained Earnings	170	100	305	510
Tax	145	70	220	280
Tax per rupee of Profit Before Tax	0.46	0.41	0.42	**0.35**

Hence, tax per rupee of profit before tax is lowest the for 1994.

26. a

	1991	1992	1993	1994
Sales	3270	2620	4725	6435
Share Capital	98	98	205	310
Sales per rupee of share capital	33.37	26.73	23.05	20.76

Hence, we find that the sales per rupee of the share capital is the highest for the year 1991.

27. d

	1991	1992	1993	1994
Profit Before Tax	315	170	525	790
Sales	3270	2620	4725	6435
Profit Before Tax per rupee of sales	0.09	0.06	0.11	**0.12**

Hence, Profit Before Tax per rupee of sales is the highest for 1994.

28. a

	1991	1992	1993	1994
Reserves	80	220	290	535
Retained earnings	140	70	245	400
Percentage addition to reserves	175%	31.80%	84.50%	75%

Hence, we find that the highest percentage addition to reserves is in 1991.

29. a From the above table it is clear that the amount of reserves at the end of 1994 = (535 + 400) = Rs. 935 lakh.

30. e To get a majority they need 101 seats, not 100.

101 – 65 = 36 more seats

36/4 = 9% swing in favour of the Republican.

31. b Gives 101 seats, i.e. majority.

32. b

Democrats	Republicans	Liberals	Socialists	Others
3 / 90	4 / 65	1 / 12	2 / 8	3 / 25

33. c If the Republicans win 97 seats, % swing = (97 – 65) / 4 = 8

Democrats win 90 – 8(3) = 66 seats.

34. e No relation between voters turnout (votes polled) and percent swing is given.

35. d Productivity in 1975 = 700/1500 = 0.46.

Productivity in 1990 = 1550/2200 = 0.70.

Productivity in 1995 = 1875/2500 = 0.75.

Productivity in 2000 = 2300/2950 = 0.78.

36. b Average productivity = Total Prod. in 7 years / Total No. of workers in 7 years

= 9050/14100 ≅ 0.64.

37. a Cost of production = Man-hours worked × Hourly wages = 2200 × 10 × 200 = 44 lakh.

38. d Cost of production (or) wage bill = Man-hours worked × Hourly wages × Days worked

In 1975 = 1500 × 13 × 140 × 250

= 27,30,000 × 250

In 1980 = 1650 × 12 × 150 × 250

= 29,70,000 × 250

In 1995 = 2500 × 9 × 250 × 250

= 56,25,000 × 250

In 2000 = 2950 × 8 × 275 × 250

= 64,90,000 × 250

39. a It is clear that least man-hours worked is in 1970 = 1300 × 12 = 15,600 man-hours × 250 days

40. e Total man-hours worked

= 250 × 12 + 250 × 13 + ... 250 × 8

= 250(12 + 13 + 12 + ... + 8)

= 250(75) = 18,750

41. a Average cost = Total cost/Number of units

= 10555000/570 = 18517 ≈ 18500

42. b Percentage increase (from 70 to 83)

$$= \frac{6.5-4.5}{4.5} \times 100\% = \frac{2}{4.5} \times 100\% = 44.4\%$$

43. a Difference in Agricultural and Rural loans in 1974 = (7600000 – 375000) = 7225000

Difference in Agricultural and Rural loans in 1976 = (975000 – 800000) = 1750000

For 1978 = 3450000 – 2800000 = 650000

For 1983 = 3150000 – 1600000 = 1550000

44. c $\frac{\text{Sum of Average Value of loans}}{\text{No. of given years}}$

$$= \frac{273}{12} \times 1000$$

$$= 22750 \simeq 23000$$

(observe that number of given years = 12,81 and 82 are not given in the table)

45. a For the index as 4.49, loan value is 100

For the index as 5.29,

$$\text{loan value} = \frac{100 \times 5.29}{4.49} = 117.8$$

17.8% increase

46. b I. Total cost of agricultural loans in 1972 is Rs. 3,50,000

Total cost of rural loans in 1980 is Rs. 2,700,000

II. Percentage increase in consumer price index in 1972 = 0.36/5.29 × 100 = 6.8%

III. Average value = Rs. 20,000. One out of 130 loans could be more than Rs. 20,000.

47. c Sales would have been 909.12.

The ratio would have been 2.2086 and the percentage would have been 220.86%.

48. d Gain = 9420 – 1000 = Rs 8,420

49. d Trend followed by gross profit is, it increase in 1998, then decreases in 1999. Going with the options, we have seen that EPS follows the same trend as the gross profit follows.

50. a Percentage increase

$$= \frac{2007.95 - 1810.65}{1810.65} \times 100 = 10.89\%$$

Sales for 2001 will be $2007.95 \times (1.1089)^2 = 2470$

51. e

52. b Numerator is less and denominator is more compared to other fractions.

53. c Total investment = Rs. 475 crores

$$SI = \frac{475 \times 10 \times 2}{100} = \text{Rs. } 95 \text{ crores}$$

Future value = Rs. 570 crores

54. d

55. e A = Rs. 180 crores, P = Rs. 125 crores, T = 2 years

$$180 = 125\left(1 + \frac{R}{100}\right)^2$$

solving, R = 20%

56. a P = Rs. 250 crores, R = 10%, T = 3 years

$$A = 250\left(1 + \frac{10}{100}\right)^3 = \text{Rs. } 332.75 \text{ crores}$$

57. a The total sales over the period shown for different manufactures are given as follows:

(a) For A = 440 + 480 + 470 + 500 + 520 + 510 = 2920 × 1000 units.

(b) For B = 400 + 410 + 415 + 415 + 420 + 430 = 2490 × 1000 units.

(c) For C = 380 + 390 + 390 + 400 + 420 + 495 = 2475 × 1000 units.

(d) For D = 360 + 380 + 400 + 415 + 440 + 500 = 2495 × 1000 units.

(e) For E = 480 + 440 + 440 + 420 + 425 + 435 = 2640 × 1000 units.

Thus, the sale of the manufacturer A would be the highest.

58. e Required share

$$= \left(\frac{410}{480 + 410 + 390 + 380 + 440}\right) \times 100 \approx 19.5\%$$

(Observe that the sum total of the numbers in the denominator would be higher than 'five times 410' and hence, the required percentage would be a little less than 20%).

59. c The percentage growth in sales in 1993 as compared to the previous year for various manufacturers is as follows :–

(a) For A $\frac{510 - 520}{520} \times 100\% = -1.9\%$ (decline)

(b) For B $= \frac{430 - 420}{420} \times 100\% = +2.4\%$

(c) For C $= \frac{495 - 420}{420} \times 100\% = +17.9\%$ (Highest)

(d) For D $= \frac{500 - 440}{440} \times 100\% = +13.6\%$.

(e) For E $= \frac{500 - 440}{440} \times 100\% = +13.6\%$.

(**Note:** It can be easily observed that, since the difference is the highest in case of manufacturer C, the largest percentage growth would naturally occur for him.)

60. b Required ratio = (400 ÷ 500) = 0.8 .

61. d The figure for the highest sale of scooters over the period shown is 520 units which occurs in 1992 in case of the manufacture A.

62. b 45 + 86 + 87 = 218 (information from the portion of table that talks about Party B.

63. b $\frac{19 + 74 + 49}{218} \times 100 \cong 65\%$

64. a $6 : 74 \approx 1 : 12.3$

65. c 45 → total population is 218

135000 → population = 218/45 × 135000

= 654000

66. d 16/78 × 100 = 20.5%

67. d The numerical difference between production and sales is the highest in case of "F – 1993"

(equal to 12032 – 10197 = 1835 units).

68. e Required difference is given as:

[(5851 – 5829) + (512 – 447) + (10879 – 10409) + (2121 – 1247) + (9245 – 8936)+ (12032–10197)] = 3575 units.

69. c In case of both B and D, the figures of both production and sale indicate "nil" for the months of March 1994 and 1995.

70. a The numerical difference between the production and sale is the lowest in case of "A – 1993"

(equal to 5851 – 5829 = 22 units).

71. d The production figure is lower than the sales figure in case of two occurrences, given as "C – 1995 " and "E – 1994" .

72. d From the observation we have found that product BN didnot deteriorate between 1993 and 1994.

73. c Product BN in Kolkata and product MT in Delhi had doubled their market share.

74. a MT in Calcutta decreases from 25 to 10 = 60%.

75. b City where thhe number of products losing minimum number of market share between 1993 and 1994 is Kolkata.

76. c Number of products which has a 100% market share in the four metros was 2, namely, HD and BN.

77. d

78. e Question asked is 'compared to previous year' whereas data is given only after 10 years, so cannot be determined.

79. a Foodgrain production has increased from 50.82 to 176.39, i.e. 247.08% growth in 40 years. Thus, average annual growth is 247.08/40 = 6.1%.

80. b 0.872 tons = 872 kg.

81. c Production per hectare in 90-91 = 176.39/127.84

$$\text{Production per hectare in 00-01} = \frac{176.39 \times 1.11}{127.84 \times 0.92}$$

Thus, the ratio of the two = 1.11/0.92 = 1.206

Growth rate in production per hectare = 20.6%.

82. d Figures given are only for the first year in a decade. So, we cannot draw any conclusion regarding the whole decade.

Level - 2

83. c Number of cases found as "Slight" under-nourished in the year 1989

$$= 10.8 \times \frac{1,048,000}{100} = 113,184 = 1,13,000$$

(rounded figure)

84. d Number of "Total" under-nourished cases in

$$1986 = 15.5 \times \frac{1,015,000}{100} = 1,57,325$$

Number of "Total" under-nourished cases in

$$1993 = 8.8 \times \frac{1,161,000}{100} = 1,02,168$$

Hence, difference between them = 1,57,325–1,02,168 = 55,157 = 55,000 (rounded figure).

85. b From the table, it is obvious that the percentage of "Slight" under-nourished category is decreasing continuously over the given years.

86. e Number of "Advanced" under-nourished cases in

$$1990 = 0.2 \times \frac{1,023,000}{100} = 2046$$

Number of "Advanced" under-nourished cases in

$$1991 = 0.1 \times \frac{1,048,000}{100} = 1048$$

Number of "Advanced" under-nourished cases in

$$1992 = 0.1 \times \frac{1,063,000}{100} = 1063$$

Number of "Advanced" under nourished cases in

$$1993 = 0.1 \times \frac{1,161,000}{100} = 1161$$

Hence, the number of "Advanced" under-nourished cases was lowest in the year 1991.

87. b Number of "Total" under-nourished cases in

$$1986 = 15.5 \times \frac{1,015,000}{100} = 1,57,325$$

Number of "Total" under-nourished cases in

$$1987 = 15.9 \times \frac{1,048,000}{100} = 1,66,632$$

Number of "Total" under-nourished cases in

$$1988 = 14.9 \times \frac{1,071,000}{100} = 1,59,579$$

Number of "Total" under-nourished cases in

$$1989 = 12.9 \times \frac{1,048,000}{100} = 1,35,192$$

Number of "Total" under-nourished cases in

$$1990 = 12.2 \times \frac{1,023,000}{100} = 1,24,806$$

Number of "Total" under-nourished cases in

$$1991 = 11.5 \times \frac{1,048,000}{100} = 1,20,520$$

Number of "Total" under-nourished cases in

$$1992 = 9.9 \times \frac{1,063,000}{100} = 1,05,237$$

Number of "Total" under-nourished cases in

$$1993 = 8.8 \times \frac{1,161,000}{100} = 1,02,168$$

Sum of "Total" under-nourished cases = 1071459

Average of "Total" under-nourished cases= 133932.375.

In four years the cases are more than average.

88. e It cannot be determined because we don't know how many vehicles run on a particular type of fuel or a combination of fuel.

89. c The highest consumption of fuel under the fuel consumption for 'Others' category is for "Haryana"

(a) Fourth largest state in Gasoline consumption is Himanchal Pradesh.

(b) Third largest state in Petrol consumption is Andhra Pradesh.

(c) Third largest state in Diesel consumtpion is Haryana.

(d) Forth largest state in total fuel consumption is Gujrat.

90. d Haryana has the largest consumption of Gasoline. Consumption of diesel in Haryana = 26075

Kerala has the largest consumption of Petrol.

Consumption of Diesel in Kerala = 26785

The difference = 710

91. e It cannot be determined because we don't know how many vehicles run on particular type of fuel or a combination of fuel.

For questions 92 to 96 :

By using the information and figures given we can conclude the following.

(a) The total of 30,860 connections have been issued to Luke Ganj and Munir Nagar but we can not certainly say which of them is Luke Ganj or Munir Nagar

(b) Chandipur cannot have the least number of connections issued region and Luke Ganj has not been issued the least number of connections so the least number of connections must be issued in Hero Nagar.

(c) Moreover as number of connections issued in Daulat ganj is more than the number of connections issued in Chotapur and Munir Nagar. On the basis of this information following table can be prepared

Locations	A	B	C	D
Regions	Daulat Ganj	Kirki Ganj	Chotapur	Luke Ganj or Munir Nagar
Locations	**E**	**F**	**G**	**H**
Regions	Luke Ganj or Munir Nagar	Bolapur	Chandipur	Hero Nagar

92. c Daulat Ganj (32,155) –Chandipur (6,591) = 25,564.

93. a Total number of connections issued in the region = 1,26,653. Total number of connections issued in Bholapur = 8,707

$$\text{Required percentage} = \frac{8,707}{1,26,653} \times 100 = 6.8\%$$

94. c Total number of connections issued in Kirki Ganj = 21,571

$$\text{Percentage} = \frac{21,571}{1,26,653} \times 100 = 17.03\%$$

or $\frac{1}{5}$ (Approx.)

95. e Since we do not know the number of connections issued in Luke Ganj or Munir Nagar, hence can not be determined.

96. a Average = $\frac{30,860}{2}$ = 15,430

97. a Ram takes the initiative to talk to the stranger. Hence, his first statement is untrue.

98. b If Krishna knew who did it, then his first statement would be true. Thus, Mathew's first statement is wrong and he did it.

99. b Bobby's statement that he is Amar's father is confirmed by taking the opposite of Amar's statement I. Hence, his second statement is true, viz. the chief wears a red shirt. Hence, Bobby is the chief.

100. b Leena's second statement is correct. She is the pilot.

101. c Number of line employees with 3 to 5 years of employment = 140

Out of the above the number that attended training on Financial Management = 80

Therefore, the number of line employees with 3 to 5 years employment who did not attend training on Financial Management is (140 – 80), i.e. 60.

102. e The number of employees who attended training on decision making alone = (The number who attended training on decision making alone and those who attended training on both decision making and Financial Management) – (Those who attended training on both programmes).

Therefore, number of employees with less than 3 years of employment who attended training on decision making alone = (40 – 10) + (30 – 15) = 45

Similarly, the number of employees with less than 3 years of employment who attended training on Financial Management alone = (30 – 10) + (20 – 15) = 25

Answer = 45 + 25 = 70.

103. a Number of line employees with more than 5 years of employment who attended at least one programme

= 50 + 40 – 30 = 60.

Number of staff employees with more than 5 years of employment who attended at least one programme

= 40 + 50 – 20 = 70.

Total number of employees with more than 5 years of employment who attended at least one programme

= 60 + 70 = 130.

Percentage of employment with more than 5 years of employment who did not attend either workshop

$$\frac{(200+160)-130}{200+160}\times 100 = \frac{230}{360}\times 100 = 64\%$$

104. b (50 + 40) + (40 + 50) – (30 + 20) = 130

For questions 105 to 108:

Let y_1 be the total cost incurred on Comedy max and x_1 be the number of units of Comedy max produced

Let y_2 be the total cost incurred on Chander lok and x_2 be the number of units of Chander lok produced

According to question

y_1 = m_1 (mfg. cost of Comedy max) + a_1 (adv. spend on Comedy max)

$m_1 = v_1x_1$ (variable cost of producing 1 unit of Comedy max)

$\therefore \quad y_1 = v_1x_1 + a_1$

$1200 = 100v_1 + a_1$ ... (a)

$2000 = 200v_1 + a_1$ ... (b)

$100v_1 = 800 \Rightarrow v_1$ = Rs. 8/unit

$\therefore \quad a_1$ = Rs. 400

And $Y_2 = v_2x_2 + a_2$

$9200 = 100v_2 + a_2$ ... (c)

$10,800 = 200v_2 + a_2$ ... (d)

$100v_2 = 1600$

$\Rightarrow \quad v_2$ = Rs.16/unit

$\therefore \quad a_2$ = Rs. 7,600

105. c Total advertising budget = $a_1 + a_2$ = Rs. 8,000

106. b If y = Total cost incurred by Darco Ltd. :

$y = y_1 + y_2 + A$ (administrative expense)

y = Rs. 11,000 when x_1 = 100 units

$\Rightarrow \quad y_1$ = Rs. 1,200

when x_2 = 100 units

$\Rightarrow \quad y_2$ = Rs. 9,200

$\therefore \quad A = 11,000 - 1,200 - 9,200$

$\Rightarrow \quad A$ = Rs. 600

So, administrative cost is Rs. 600.

107. d $y = y_1 + y_2 + A$

At full capacity :

$y_1 = v_1x_1 + a_1 = 8 \times 1,000 + 400$ = Rs. 8,400

$y_2 = v_2x_2 + a_2 = 16 \times 2000 + 7,600$ = Rs. 39,600

A = Rs. 600

$\therefore$ y = Rs. 8,400 + Rs. 39,600 + Rs. 600

= Rs. 48,600

108. a Advertising cost is irrespective of the number of units produced and is Rs.7,600 + Rs. 400 = Rs. 8,000

For questions 109 to 113:

Let a,b,c,d be the number of days on which those four employees were present.

(a > b > c > d)

$\Rightarrow$ a + b = 51, c + d = 40 and a + c = 49

a + b = 51 $\Rightarrow$ a $\geq$ 26 and b $\leq$ 25

c + d = 40 $\Rightarrow$ c $\geq$ 21 and d $\leq$ 19

a + c = 49 $\Rightarrow$ a $\geq$ 25 and c $\leq$ 24

Thus, 'c' could be 21 or 22 or 23 or 24. Corresponding values of a,b,d would be

Cases	I	II	III	IV
a	28	27	26	25
b	23	24	25	26
c	21	22	23	24
d	19	18	17	16

But in the rightmost case IV, a < b. Thus, it may be ignored.

Cases	I	II	III
a	28	27	26
b	23	24	25
c	21	22	23
d	19	18	17

109. b Column figure numbered 5 = b + d

= (a + b) + (c + d) – (a + c)

= 51 + 40 – 49 = 42

110. a From the table above, the only way two figures can sum up to 45 is (a + d) in case II. Thus, the column figure 3 should read 46.

111. c Eksa was present on 'c' days. Maximum value of c = 23.

112. e Column figure numbered 3 is (a + d). Thus, the other two columns must be (b + c) and (b + d). Also, since (a + d) is column figure numbered 3, a + d > b + c

This is happening only for case I.

(a + d) = 47

113. b Let x, y, z and w be the number of days on which exactly one, exactly two, exactly three and exactly four of these mentioned employees were present.

Therefore, x + 2y + 3z + 4w = 91 ...(i)

Also, x + y + z + w = 30 ...(ii)

Case I: y = 0

$\Rightarrow$ 2z + 3w = 91 – 30 = 61.

Possible values of x, z and w are tabulated below:

x	z	w
9	2	19
8	5	17
7	8	15
6	11	13
5	14	11
4	17	9
3	20	7
2	23	5
1	26	3
0	29	1

Case II: z = 0

Possible values of x, y and w are tabulated below:

x	y	w
7	4	19
5	7	18
3	10	17
1	13	16

Case III: x = 0

Possible values of y, z and w are tabulated below:

y	z	w
0	29	1
1	27	2
2	25	3
3	23	4
4	21	5
5	19	6
6	17	7
7	15	8
8	13	9
9	11	10
10	9	11
11	7	12
12	5	13
13	3	14
14	1	15

Therefore, the number of days on which exactly 3 employees were present can never be equal to 4.

Hence option (2) is the correct choice.

For questions 114 to 118:

All the baskets have different number of oranges. If you look at the table, you will find both the cells A1 and A8 contains 8. So, A is not the person who counted the number of oranges in all the baskets correctly.

Similarly, C15 = C20 = 11, F1 = F9 = 9, G1 = G9 = 9, H1 = H8 = 8, K4 = K10 = 14 and L2 = L7 = 2.

So, exactly one of the remaining friends B, D, E, I and J, must have counted the number of oranges in all the baskets correctly.

Let us assume that B correctly counted the number of oranges in all the baskets.

Comparing the number of baskets for which A correctly counted all the oranges we get it as 15, which is not possible as no one counted the number of oranges correctly in 15 baskets. Similarly D compared with both B and C, counted 6 baskets correctly. But 6 occurred only once in the correctly counted basket list. So we did not check for D further.

Similarly comparing with each person we get the following table.

	A	B	C	D	E	F	G	H	I	J	K	L	
B	15	-	-	-	-	-	-	-	-	-	-	-	No
D	8	6	6	-	-	-	-	-	-	-	-	-	No
E	8	8	-	-	-	-	-	-	-	-	-	-	No
I	17	16	14	10	11	8	7	6	20	2	4	5	Yes
J	-	-	-	-	-	-	-	11	2	20	11	-	No

The following table shows the number of baskets for which the numbers of oranges were counted correctly by each individual.

Person	A	B	C	D	E	F	G	H	I	J	K	L
Number of Baskets	17	16	14	10	11	8	7	6	20	2	4	5

114. d From the above table it is clear that only option 4 is incorrect.

115. e From the above table it is clear that only option 5 is correct.

For questions 116 to 118:

The following table shows number of friends who counted the number of oranges in a particular basket correctly.

Basket No.	1	2	3	4	5	6	7	8	9	10
Number of friends	8	7	5	6	6	6	7	5	8	6
Basket No.	11	12	13	14	15	16	17	18	19	20
Number of friends	6	5	6	6	5	6	5	5	6	6

116. b For 6 baskets, 7 friends counted the number of oranges incorrectly (Basket numbers 3, 8, 12, 15, 17, 18).

117. b 12 friends counted all 20 baskets. Total number of counts is (12 × 20) = 240

Number of correct counts is (2 + 4 + 5 + 6 + 7 + 8 + 10 + 11 + 14 + 16 + 17 + 20) = 120.

So, number of incorrect counts is (240 – 120) = 120

Alternative Method:

Aggregate number of times in which the number of oranges in a basket was incorrectly counted by any of the friends = 4 + 5 + 7 + 6 + 6 + 6 + 5 + 7 + 4 + 6 + 6 + 7 + 6 + 6 + 7 + 6 + 7 + 7 + 6 + 6 = 120.

118. a For 10 baskets 6 friends counted the number of oranges correctly (Basket numbers 4, 5, 6, 10, 11, 13, 14, 16, 19, 20).

For questions 119 to 123: Logically we can further fill-up few more cells of Table - 2 as illustrated below:

Employees	Grade	% of variable pay-out	Annual Performance Rating
P	8 or 10	40	3
Q	4	0	2
R	2 or 3	0	1 or 2
S	1	90	4
T			
U	5 or 6	70	4
V	7		
W			
X			5
Y	9	0	1 or 2

119. b If X is in grade 8, then T can belong to grade 2 or 3 or 5 or 6.

So, the highest grade of T can be 6.

120. a If T received an annual performance rating of '4', then W must have received an annual performance rating of '5'. For maximum percentage of variable pay-out, W may be in grade 2 or 3 and recieved 130% of variable pay-out.

121. b In order to minimise the number of employees who received an annual performance rating '3', we have to assume that T, U, V, W received ratings '4', '4', '5', '5' respectively. With this assumption, without violating any given condition we can collate the following table:

Employees	Grade	% of variable pay-out	Annual Performance Rating
P	8 or 10	40	3
Q	4	0	2
R	2 or 3	0	1 or 2
S	1	90	4
T	10 or 8	60	4
U	5 or 6	70	4
V	7	100	5
W	2 or 3	130	5
X	5 or 6	110	5
Y	9	0	1 or 2

From the table, only P gets annual performance rating '3'.

122. b If T and W received an annual performance rating of '3', then T and W cannot be from grade '8' or '10'. P, who belongs to category III, already received a performance rating of '3'. So, X must belong to grade '8' or '10'.

By checking the options, we can conclude that option (2) is correct. P, V, X and Y are in the same category.

123. d If 'V' received an annual performance rating of '5', then 'T' can belong to one of the grades among '2', '3', '5', '6', '8' or '10'.

124. b Required Cost = (240 × 1.5) + (1200 × 3) + (840 × 1.8) = Rs. 5,472.

125. e Required average

$$= \frac{(48\times1.5)+(48\times1.6)+(48\times2.4)+(48\times2.0)+(48\times1.0)}{(48+48+48+48+48)}$$

or, $\frac{1.5+1.6+2.4+2+1}{5}$ = Rs. 1.7

126. d The cost of transportation for each alternative are :

(1) 300 × 2.8 = Rs. 840

(2) 200 × 3.0 = Rs. 600

(3) 300 × 1.5 = Rs. 450

(4) 400 × 1.1 = Rs. 440

Obviously, the cost of transportation of alternative (4) is the least.

127. d Required percentage

$= \frac{1200-240}{240}\times100\% = 400\%$.

128. b The average transportation cost of product B is given as [(3.0 + 3.2 + 3.0 + 2.8 + 4.0) ÷ 5]

= Rs. 3.2 per unit.

While that of product A is Rs. 1.7 per unit (already obtained in Q. 10). Hence, the required difference is Rs. 1.5

129. b G's average in

(i) Adventure Sports group = 94

(ii) Motor Sports group = 92

(iii) Water Sports group = 94

(iv) Underwater Activities group = 88

(v) Extreme Sports group = 94

G's final score = $\left(\frac{94+92+94+88+94}{5}\right) = 92.4$

Let B get x points in Swimming.

B's average in

(i) Adventure Sports group = 91

(ii) Motor Sports group = 92

(iii) Water Sports group = $\frac{(94+x)}{2}$

(iv) Underwater Activities group = 92

(v) Extreme Sports group = 94

$\Rightarrow 91 + 92 + \frac{(94+x)}{2} + 92 + 94 = 92.4 \times 5$

$\Rightarrow 91 + 92 + 47 + \frac{x}{2} + 92 + 94 = 92.4 \times 5$

$\Rightarrow x = 92$

130. e Final score is the average of the scores in each group.

If score increases in one of the events in Adventure Sports group then effective contribution to final score is 33.3% as average of 3 events is taken.

If score increases in Motor Sports group then effective contribution to final score is 100%.

If score increases in one of the events in Water Sports group then effective contribution to final score is 50% as average of 2 events is taken.

If score increases in Underwater Activities group then effective contribution to final score is 100%.

If score increases in one of the events in Extreme Sports group then effective contribution to final score is 25% as average of 2 events is taken after halving the score in those events.

So, in order to have maximum possible final score, the increase in points should be in Motor Sports and Underwater Activities.

Maximum possible increase in the events of those two categories = (100 – 98) + (50 – 43) + (50 – 42) = 2 + 8 + 7 = 17 points.

We are left with (20 – 17) = 3 points

These 3 points can increase in Water Sports group.

So maximum possible points that D can have in Water Diving is (93 + 3) = 96

131. a Minimum contribution to the final score is from Extreme Sports group.

Present average of Extreme Sports for I = 93

Maximum possible increase in Extreme Sports = (200 – 182) + (200 –190) = 18 + 10 = 28

If I gets 28 points more in Extreme Sports, then effective contribution to the final score

$$= \frac{(100-93)}{5} = 1.4$$

So we still need to increase 0.6 points in the final score.

For maximum increase now, we need to increase the points in Adventure Sports.

For every 3 points increase in any of the events of Adventure Sports the increase in final

$$\text{score} = \frac{1}{5}\left[\frac{3}{3}\right] = 0.2 \text{ points}$$

So, for 0.6 points increase in final score the increase in Adventure Sports should be

$$\left(\frac{0.6}{0.2}\right) \times 3 = 9 \text{ points.}$$

So overall increase in points such that final score of I increase by 2 and there is maximum increase in cumulative sum of points = 28 + 9 = 37

132. d C's final score = 93.8

Statement 1

Consider C's points in Motor Racing, Scuba Diving, Fishing, Swimming and Water Diving as 100, 50, 50, 100 and 100 respectively.

So increment in total points = (100 – 94) + (50 – 49) + (50 – 48) + (100 – 94) + (100 – 98) = 17 points

So remaining 15 points can be distributed among the events of Adventure Sports.

So change in contribution to final score by Motor

$$\text{Sports} = \frac{6}{5} = 1.2$$

$$\text{Water Sports} = \left[\left(\frac{6+2}{\frac{2}{5}}\right)\right] = 0.8$$

$$\text{Underwater Activities} = \frac{3}{5} = 0.6$$

$$\text{Adventure Sports} = \frac{15}{\frac{3}{5}} = 1$$

So change in final score = 1.2 + 0.8 + 0.6 + 1 = 3.6

So final score can be 93.8 + 3.6 = 97.4

So statement 1 is true.

Statement 2

Consider the case when C's score in both the events of Extreme Sports become 200, there is an increment of 2 points in either Motor Sports or Underwater Activities and there is an increment of 2 points in Water Sports also. In this case the final score will increase by exactly 2 points.

Increase in total points = 20 + 8 +2 + 2 = 32

$$\text{Increase in final score} = \left(\frac{\frac{28}{4}}{5}\right) + \frac{2}{5} + \left(\frac{\frac{2}{2}}{5}\right)$$

= 1.4 + 0.4 +0.2 = 2. So statement 2 is true.

Statement 3

Statement is true as it can be seen from the explanation of statement 1 that C's final score can be 97.4, which will be the highest among the given students in that case.

Statement 4

C cannot have equal average score in all the

groups, as minimum average score that can be equal in all groups is 97. So in order to attain average score of 97 in all groups minimum points required = 4 + 15 + 5 + 3 + 3 – 1 + 16 = 45. So, statement 4 is false.

Statement 5

Statement is true as in Adventure Sports group, C needs (7 + 18 + 8) = 33 points to get an average score of 100.

133. d By observation we find that E and F have points more than their final score in 7 events each.

For questions 134 to 138:

134. c Let the marks secured by A in Physics III paper, E in Physics I paper and H in Physics III paper be x, y and z respectively. Also assume that average marks scored by them in Physics test is p, q and r respectively.

or, $p = \frac{(25 + x)}{3}$, $q = \frac{(22 + y)}{3}$ and $r = \frac{(26 + z)}{3}$

Possible combinations for 'x' and its corresponding value of 'p' are

x	2	5	8	11	14	17
p	9	10	11	12	13	14

Similarly, the possible combinations for 'y' & 'q' and 'z' & 'r' are as follows

y	2	5	8	11	14	17
q	8	9	10	11	12	13

z	1	4	7	10	13	16	19
r	9	10	11	12	13	14	15

But, average of Physics I paper is 16. So, the total of this paper must be 128. That means the marks secured by D and E taken together must be 31.

$\therefore\ y \geq 14$

So, from the table shown above, possible values of 'y' are 14 and 17. Also from condition (iii) in the question, possible values of (p, r) can be (11, 11) or (13, 13). Corresponding values of 'x' and 'z' are (8, 7) or (14, 13). All possible values of x, z and y are tabulated below:

x	z	y	x + y + z
8	7	14	29
8	7	17	32
14	13	14	41
14	13	17	44

Hence 35 is never possible.

135. a Let the average marks secured by A, F and H in Chemistry be x, y and z respectively. Also assume that marks secured by A in Chemistry I paper and marks secured by F and H in Chemistry III paper is p, q and r respectively.

or, 3x = 22 + p, 3y = 38 + q, 3z = 17 + r

Average of S2 is 14 that means total = 112. Average marks of G in Chemistry is $\frac{19+19+4}{3} = 14$.

So, x + y + z = 112 – (9 + 15 + 16 + 16 + 14)

Or x + y + z = 42

Possible combinations for x, y and z are

x = 8, 9, 10, 11, 12, 13

y = 13, 14, 15, 16, 17, 18, 19

z = 6, 7, 8, 9, 10, 11, 12

But from condition (v) in the question, only possibility for x and z are (11, 7), (13, 7) and (13, 11).

Among the given possible values, only set of values of (x, y, z) which satisfies the given conditions is (13, 18, 11).

Hence, the sum of average marks scored by F and H = (18 + 11) = 29.

136. b Average marks secured by 8 students in Physics I paper = 16

Total marks secured by 8 students in Physics I paper = 16 × 8 = 128

As we have established in the solution of Q.73, marks secured by E in Physics I paper is either 14 or 17.

Marks secured by D = (128 – 111) = 17 or (128 – 114) = 14

Average of S1 is 14, that means total of S1 = 112. As we have established in the solution of Q.73, possibility of average marks in Physics of

A = 11 or 13 ; E = 12 or 13; H = 11 or 13

Combining these conditions we get the possible values of average marks of D in Physics as (13, 14, 17 and 18). But D can secure either 14 or 17 in Physics I paper. Even if he secures 19 in Physics III paper, the average will not reach 18. Moreover, the average needs to be an integer also. So, the possible values can be 13 and 14.

Hence 2 is the correct choice.

137. b Total marks secured by F in all tests

= 43 × 3 = 129

As we have established in the solution of Q.74, the average marks of F in Chemistry is 18.

Average marks secured by F in Maths

= 43 – (13 + 18) = 12

Marks secured in Maths II paper

= 12 × 3 – (16 + 7) = 13

138. d Total marks secured by G in all tests

$= 48 \times 3$

$= 144$

Marks secured by G in Maths III

$= 144 - (19 + 4 + 19 + 19 + 20 + 47)$

$= 144 - 128$

$= 16$

Total marks secured by 8 students in Maths III paper

$= 10 \times 8$

$= 80$

Sum of marks secured by A and H in Maths III

$= 80 - 56$

$= 24$

For questions 139 to 143:

The following table provides information about the number of units of work completed on each of the twelve given days.

On the	Rohan	Deepak	Tripti	Sonal	Tarun	Total
First day	10	12	5	20	18	65
Second day	12	20	10	5	2	49
Third day	2	18	10	15	24	69
Fourth day	16	2	25	10	4	57
Fifth day	20	32	30	15	2	99
Sixth day	8	36	16	15	45	120
Seventh day	72	20	12	20	5	129
Eighth day	8	16	32	25	12	93
Ninth day	28	16	0	15	3	62
Tenth day	4	8	0	10	5	27
Eleventh day	4	0	0	0	40	44
Twelfth day	16	0	0	0	80	96

139. c On the sixth day maximum number of units of work,

i.e. 129 was completed by all the five friends.

140. a Average units of work completed per day by all the mentioned persons is $\frac{910}{12} = 75.83$

On Day 3, the total units of work completed is 69.

Hence, out of the options given Day 3 is the only day on in which the total units of work completed is less than the average units of work completed per day by all the mentioned persons.

Hence, option (1) is the correct choice.

For questions 141 and 142:

By comparing the number of units completed by each of the five persons on each of the twelve days we get the following conclusion.

Rohan is more efficient than both Tripti and Sonal.

Deepak is more efficient than both Rohan and Tripti

Tripti is more efficient than none of the mentioned persons

Sonal is more efficient than Tarun

Tarun is more efficient than both Tripti and Rohan.

141. c Out of the mentioned persons Tarun is more efficient than Rohan.

142. e There are three persons namely Rohan, Deepak and Tarun who are more efficient than exactly two persons.

143. d On seven days namely the second, third, fourth, fifth, sixth, seventh and ninth days the number of units of work completed by Sonal is more than at least one and at most two out of the mentioned persons.

144. b From the first week data we can arrive at the following work pattern of Bankatlal for the 1st month.

First Month:

	1st week	2nd week	3rd week	4th week
Hours of rest	2	5	2	5
Working hours	5	2	5	2
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.100	Rs.20	Rs.100	Rs.20
Total Wage per week	Rs.600	Rs.120	Rs.600	Rs.120

Thus, his total wage = (600 + 120 + 600 + 120)

= Rs. 1,440

145. c Let us compile the data for 2nd, 3rd and 4th month.

Second Month :

	5th week	6th week	7th week	8th week
Hours of rest	3	7	3	5
Working hours	7	3	7	2
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.140	Rs.30	Rs.140	Rs.30
Total Wage per week	Rs.840	Rs.180	Rs.840	Rs.180

Third Month :

	9th week	10th week	11th week	12 week
Hours of rest	4	6	4	6
Working hours	6	4	6	4
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.120	Rs.40	Rs.120	Rs.40
Total Wage per week	Rs.720	Rs.240	Rs.720	Rs.240

Fourth Month :

	13th week	14th week	15th week	16th week
Hours of rest	0	8	0	8
Working hours	8	0	8	0
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.160	0	Rs.160	0
Total Wage per week	Rs.960	0	Rs.960	0

Total wage for 1st month = Rs. 1,440

Total wage for 2nd month = (840 + 180 + 840 + 180) = Rs. 2,040

Total wage for 3rd month = (720 + 240 + 720 + 240) = Rs. 1,920

Total wage for 4th month = (960 + 960) = Rs. 1,920

Total wage for the 4 months = (1,440 + 2,040 + 1,920 + 1,920) = Rs. 7,320

Hence, the average salary = 7,320/4 = Rs. 1,830

146.d Using the above data, we can revise the wage compilation for the third month as given below:

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hours	6	4	6	4
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.150	Rs.50	Rs.150	Rs.50
Total fine per day	Rs.20	Rs.30	Rs.20	Rs.30
Effective wage per day	Rs.130	Rs.20	Rs.130	Rs.20
Total Wage per week	Rs.780	Rs.120	Rs.780	Rs.120

So, his third month wage = (780 + 120 + 780 + 120) = Rs. 1,800.

Previously he used to earn Rs. 1,920 in the third month.

Hence, change in Bankatlal's salary for the 3rd month = (1,920 – 1,800) = Rs. 120.

147.a For the fourth month, the new wage compilation will be as given below :

Fourth Month :

	13th week	14th week	15th week	16th week
Hours of rest	0	8	0	8
Working hours	8	0	8	0
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.200	0	Rs.200	0
Total fine per day	0	Rs.40	0	Rs.40
Effective wage per day	Rs.200	-Rs.40	Rs200	-Rs.40
Total Wage per week	Rs.1200	-Rs.240	Rs.1200	-Rs.240

So, now his total wage for the 4th month

= (1,200 + 1,200 – 240 – 240)

= Rs. 1920.

Since the calculations for the first two months are made as per the old scheme of things, this has already been computed

Total wage for 1st month = Rs. 1,440

Total wage for 2nd month = Rs. 2,040

Calculations for the third and fourth month are as per new calculations and they are :

Total wage for 3rd month = Rs. 1,800

Total wage for 4th month = Rs. 4,320

So, total salary for the four months

= (1,440 + 2,040 + 1,800 + 1,920)

= Rs. 7,200.

Level - 3

For questions 148 to 152:

In the Comedy movies, the data listed down in the 1st row is the average of the number of points given by each judge to each of the movies Bhagam Bhaag and Golmaal.

So, for each of these two movies the range of the number of points given by each of the judges can vary as given in the table below.

Judge	Golmaal	Bhagam Bhaag
Madhur	70 - 100	70 - 100
Prasoon	76 - 100	76 - 100
Aditya	72 - 100	72 - 100
Karan	76 - 100	76 - 100
Yash	84 - 100	84 - 100
Sorcerer	78 - 100	78 - 100
Basu	76 - 100	76 - 100
Anubhav	72 - 100	72 - 100
Vidhu	78 - 100	78 - 100
Rakesh	76 - 100	76 - 100

The average of the number of points given by each judge to the movies Golmaal and Bhagam Bhag is fixed, so if the number points given to one of these two movies increases, then the number of points given to the other movie decreases, for e.g. if the number of points given by Madhur to Golmaal is 70, then the number of points given by Madhur to Bhagam Bhaag is 100.

148. d The group score given to Comedy movies by Karan

$$= \frac{88 + 88 + 94}{3} = 90$$

So, the group score given to Romantic movies by Rakesh is also 90.

So, the final score of Rakesh

$$= \frac{\frac{94+88}{2} + \frac{94+99+92}{3} + 90 + \frac{94+95+90}{3} + \frac{88+88+91}{3}}{5}$$

$$= \frac{91 + 95 + 90 + 93 + 89}{5} = 91.6$$

149. b Maximum number of points of given to any movie is 100. It can be either given to Golmaal or Bhagam Bhaag.

So for Basu, X = (100 – 98) + (100 – 94) + (100 – 96) + (100 – 92) + (100 – 97) + (100 – 83) + (100 – 82) + (100 – 96) + (100 – 94) + (100 – 94) + (100 – 94) + (100 – 76) + (100 – 91)

= 2 + 6 + 4 + 8 + 3 + 17 + 18 + 4 + 6 + 6 + 6 + 24 + 9

= 113

150. c For minimum possible increase in the final score, let us assume that each judge gave maximum number of points to one of the movies out of Golmaal and Bhagam Bhaag.

Minimum possible change in the final score will occur when in each group 100 points are given to the movie, to which the number of points given by the judge is closest to 100.

So, minimum possible change in the final score of Aditya

$$= \frac{4}{2} + \frac{8+6+2}{3} = 2 + 5.33 = 7.33$$

Minimum possible change in the final score Prasoon

$$= \frac{4}{2} + \frac{6+7+3}{3} = 2 + 5.33 = 7.33$$

Minimum possible change in the final score of Sorcerer

$$= \frac{3}{2} + \frac{2+5+3}{3} = 1.5 + 3.33 = 4.83$$

Minimum possible change in the final score of Basu

$$= \frac{2}{2} + \frac{3+4+6}{3} = 2 + 4.33 = 6.33$$

So, minimum possible change in the final score is for Sorcerer.

151. e As it is not known which two movies to be considered to find the final score, so the answer cannot be determined.

152. a As all the judges gave equal number of points to Golmaal, so the total number of points given to Golmaal by all the judges must be a multiple of 10.

Total number of points given to DDLJ by all the judges

= 90 + 93 + 94 + 94 + 94 + 95 + 96 + 91 + 91 + x

= 838 + x.

As the number of points given to DDLJ by all the judges should also be a multiple of 10, so x can take values 2 or 12 or 22 or 32 or 42 or 52 or 62 or 72 or 82 or 92. Therefore when DDLJ is given 82 points, the group score given to Romantic movies by Rakesh is 86.

153. c Maximum rollover participants (15) are in event 1 (Bridge the Gap) on Friday.

154. e Fresh participants = total participants – rollover participants

So maximum possible number of fresh participants in different events on Tuesday are

(i) Bridge the gap = 28 – 2 = 26

(ii) Dragon Lake = 22 – 3 = 19

(iii) Fortress = 24 – 6 = 18

(iv) Giant Maze = 26 – 3 = 23.

However this is not possible as number of fresh participants in Fortress is only 18. So in Giant Maze number of fresh participants cannot be more than 18.

So maximum ratio = 18 : 26 = 9 : 13

155. a Rollover participants in different events on Tuesday and Wednesday are tabulated below:

	Bridge the Gap	Dragon Lake	Fortress	Giant Maze
Tuesday	9	4	1	6
Wednesday	2	5	0	0

So if these participants again participate on Thursday, then rollover participants on Thursday are

	Bridge the Gap	Dragon Lake	Fortress	Giant Maze
Thursday	25 – [27–(4+5)] = 7	27–(20–1) = 8	20–(16–6) = 10	16–12 = 4

So total rollover participants on Thursday

= 7 + 8 + 10 + 4 = 29

156. d Maximum sum of rollover participants is on Thursday = 4 + 11 + 4 + 4 = 23

157. b Maximum variation = (Maximum number of rollover participants among the given five days – Minimum number of rollover participants among the given five days) in a particular event. So, Maximum variation = 15 – 2 = 13 which was in event 1, i.e. Bridge gap.

158. d Minimum possible value of C = 7 + 3 = 10

Maximum possible value of C = 14 + 8 = 22

Minimum possible value of L = 7 + 10 = 17

Maximum possible value of L = 18 + 18 = 36

It is given that L > 3 × C, therefore the possible values of C are 10 and 11.

Hence, option (4) is the correct choice.

159. b The following table lists down the range of the total number of black shirts of brands Lacoste and Dockers gifted to Larry by his mentioned friends.

	Number of black shirts	
	Lacoste	Dockers
Anjana	7 - 10	7 - 22
Urvashi	7 - 18	11 - 25
Simar	7	13 - 25
Total	**21 - 35**	**31 - 72**

Given that out of the black shirts gifted to Larry, the number of shirts of brand Lacoste is 4 more than the number of shirts of brand Dockers.

The only possibility is that the number of black shirts of brands Lacoste and Dockers gifted to Larry by his mentioned friends is 35 and 31 respectively.

Therefore, the number of black shirts of brand Dockers gifted to Larry by Simar is 13.

160. c The following table lists down the range of the total number of white shirts of each brand gifted to Larry by his mentioned friends.

	Number of white shirts			
	Caterpillar	Diesel	Lacoste	Dockers
Ravneet	3 - 5	3 - 8	13 - 18	3 - 9
Heena	3 - 8	3 - 5	3 - 12	3 - 4
Sarah	3 - 8	3 - 6	15 - 18	3 - 4
Total	**9 - 21**	**9 - 19**	**31 - 48**	**9 - 17**

Since, the maximum possible number of white shirts of brand Caterpillar gifted to Larry is less than the minimum possible number of white shirts of brand Lacoste gifted to Larry, therefore the number of white shirts of brand Caterpillar gifted to Larry is definitely less than the number of white shirts of brand Lacoste gifted to Larry.

161. e The following table lists down the range of the number of white and black shirts of each brand gifted by Anjana to Larry

Caterpillar		Diesel		Lacoste		Dockers	
Black	White	Black	White	Black	White	Black	White
10 - 25	3	18 - 25	9 - 18	7 - 10	3 - 6	7 - 22	11 - 18
68 - 127							

Given that the number of shirts bought by Larry is same as the total number of shirts gifted to him by Anjana.

Therefore, at least 750 – 2 × 127 = 496 shirts are there with Larry that are neither bought by him nor gifted to him by Anjana.

162. a The following table lists down the range of the total number of shirts of each brand gifted to Larry by his mentioned friends.

	Number of Shirts							
	Caterpillar		Diesel		Lacoste		Dockers	
	Black	White	Black	White	Black	White	Black	White
Urvashi	7 - 20	11 - 18	15 - 25	3 - 6	7 - 18	10 - 18	11 - 25	3 - 11
Simar	10 - 25	3	7 - 18	15 - 18	7	3 - 4	13 - 25	13 - 18
Total	**17 - 45**	**14 - 21**	**22 - 43**	**18 - 24**	**14 - 25**	**13 - 22**	**24 - 50**	**16 - 29**
	31 - 56		**40 - 67**		**27 - 47**		**40 - 79**	

Given that the total number of shirts of each of the mentioned brands gifted to Larry by Urvashi and Simar is the same, which means that the answer should be a multiple of 4.

We can conclude from the table that the range of the total number of shirts of each brand gifted to Larry is 40 – 47.

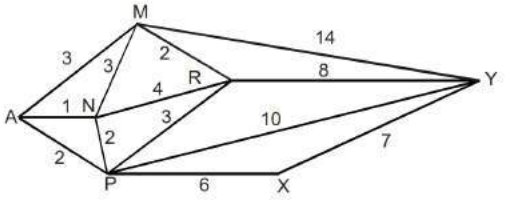
So, the range of the total number of shirts gifted to Larry will be (40 × 4 – 47 × 4) = (160 – 188)

Only, option (1) lies within the permissible range.

Hence, option (1) is the correct choice.

For questions 163 to 167:

From the given data, we can construct the following network diagram:



In the above diagram distance in nano-meter is given along side every path.

163. b The longest path from 'P' to 'R' is 12 *nm*. The signal must have traced P-A-M-N-R. So, 3 intermediate nodes.

164. e The path X-P-R-N-A-M-Y will give the longest distance of 31 *nm*.

165. b If no signal can pass through the node 'P', then the signal must trace the path A-N-R-Y. Total length will be 1 + 4 + 8 = 13 *nm* in that case.

166. e If the signal traces the path N-M-R-Y, then the length of the path will be 13 *nm*, and the time taken will be 2.6 mili-second. So, option (1) is possible.

If the signal traces the path N-A-M-R-Y, then the length of the path will be 14 *nm*, and the time taken will be 2.8 mili-second. So, option (2) is possible.

If the signal traces the path N-M-A-P-Y, then the length of the path will be 18 *nm*, and the time taken will be 3.6 mili-second. So, option (3) is possible.

If the signal traces the path N-R-M-A-P-Y, then the length of the path will be 21 *nm*, and the time taken will be 4.2 mili-second. So, option (4) is possible.

Only option (5) is not possible.

167. b Case I, case III and case IV will not get affected, because those paths do not pass through 'N'.

PREVIOUS YEARS QUESTIONS

LEVEL - 1

1991

Directions for Questions 1 to 5: *Answer the questions on the basis of the information given below.*

The following table gives the national income and the population of a country for the years 1984 – 85 to 1989 –90. For each of the following questions choose the best alternative:

Year	National Income (in Rs. Crore)	Population (in crore)
1984-85	229,225	74.0
1985-86	261,174	75.0
1986-87	291,556	77.0
1987-88	329,934	78.5
1988-89	388,539	80.0
1989-90	433,500	81.5

1. The increase in the per capita income compared to the previous year is lowest for the year :

(a) 1985-86 (b) 1986-87

(c) 1987-88 (d) 1989-90

2. The per capita income is highest for the year :

(a) 1984-85 (b) 1985-86

(c) 1987-88 (d) 1989-90

3. The difference between the percentage increase in per capita income and the percentage increase in the population compared to the previous year is highest for the year:

(a) 1985-86 (b) 1986-87

(c) 1987-88 (d) 1988-89

4. The rate of increase in population was lowest in the year:

(a) 1985-86 (b) 1987-88

(c) 1989-90 (d) None of these

5. Increase in the per capita income compared to the previous year among the years given below was highest for the year:

(a) 1985-86

(b) 1986-87

(c) 1987-88

(d) 1989-90

1993

Directions for Questions 6 to 9: *Answer the questions on the basis of the information given below.*

Given below are the forecasts of the World and Asian energy demand for the years 1990, 2000 and 2010. The demand is given in million barrels per day, crude oil equivalent.

	1990		2000		2010	
	World	Asia	World	Asia	World	Asia
Petroleum	50.0	4.0	70.0	10.0	80.0	15.0
Natural Gas	30.0	0.5	40.0	2.5	50.0	5.0
Solid Fuels	50.0	4.0	60.0	5.0	75.0	10.0
Nuclear	10.0	0.5	20.0	1.0	25.0	1.3
Hydropower	10.0	1.0	10.0	1.5	20.0	2.0
Total	150.00	10.0	200.0	20.0	250.0	33.3

6. Over 1990 – 2010, which two fuels meet more than 60 percent of the total energy demand of both World and Asia?

(a) Petroleum & Natural Gas

(b) Petroleum & Solid Fuels

(c) Natural Gas & Solid Fuels

(d) None of the above

7. Which fuel's proportion in the total energy demand increases over the decade 1990–2000 and decreases over the decade 2000 – 2010 for both the World and Asia?

(a) Petroleum (b) Natural Gas

(c) Solid Fuels (d) Nuclear

8. Which is the fuel whose proportion in the total energy demand will decrease continuously over the period 1990 – 2010, in Asia?

(a) Natural Gas (b) Solid Fuels

(c) Nuclear (d) Hydropower

9. Which is the fuel whose proportion to the total energy demand of the world will remain constant over the period 1990 – 2010 but whose proportion will increase in the total energy demand in Asia?

(a) Solid Fuels (b) Nuclear

(c) Hydropower (d) Natural Gas

1994

Directions for Questions 10 to 13: *Answer the questions on the basis of the information given below.*

The following table gives the sales details for text books and reference books at Primary/Secondary/Higher Secondary/Graduate Levels.

Year	Primary	Secondary	Higher Secondary	Graduate Level
1975	42137	8820	65303	25343
1976	53568	10285	71602	27930
1977	58770	16437	73667	28687
1978	56872	15475	71668	30057
1979	66213	17500	78697	33682
1980	68718	20177	82175	36697

10. What is the growth rate of sales of books at primary school level from 1975 to 1980?

(a) 29% (b) 51%

(c) 63% (d) 163%

11. Which of the categories shows the lowest growth rate from 1975 to 1980?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

12. Which category had the highest growth rate in the period?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

13. Which of the categories had either a consistent growth or a consistent decline in the period shown?

(a) Primary (b) Secondary

(c) Higher secondary (d) Graduate Level

Directions for Questions 14 to 17: *Answer the questions on the basis of the information given below.*

Bankatlal works x hours a day and rests y hours a day. This pattern continues for 1 week, with an exactly opposite pattern next week, and so on for four weeks. Every fifth week he has a different pattern. When he works longer than he rests, his wage per hour is twice what he earns per hour when he rests longer than he works.

The following are his daily working hours for the weeks numbered 1 to 13.

	1st week	5th week	9th week	13th week
Rest	2	3	4	-
Work	5	7	6	8

A week consists of six days and a month consists of 4 weeks.

14. If Bankatlal is paid Rs. 20 per working hour in the 1st week. What is his salary for the 1st month?

(a) Rs.1760 (b) Rs.1440

(c) Rs.1320 (d) Rs.1680

15. Referring to the data given in Q.187, Bankatlal's average monthly salary at the end of the first four months will be

(a) Rs.1780 (b) Rs.2040

(c) Rs.1830 (d) Rs.1680

16. The new manager Khushaldas stipulated that Rs.5 be deducted for every hour of rest and Rs. 25 be paid per hour starting 9th week, then what will be the change in Bankatlal's salary for the 3rd month? (Hourly deductions are constant for all weeks starting 9th week)

(a) Rs.540 (b) Rs.480

(c) Rs.240 (d) Rs.120

17. Using the data in the previous questions, what will be the total earning of Bankatlal at the end of sixteen weeks.

(a) Rs.7320 (b) Rs.7800

(c) Rs.8400 (d) Rs.9600

1995

Directions for Questions 18 to 22: *Answer the questions on the basis of the information given below.*

Ghosh Babu surveyed his companies and obtained the following data. Income tax is paid from profit before tax and the remaining amount is apportioned to dividend and retained earnings. The retained earnings were accumulated into reserves. The reserves at the beginning of 1991 were Rs.80 lakh.

Figure (in Rs. lakh)	1994	1993	1992	1991
Share capital	310	205	98	98
Sales	6435	4725	2620	3270
Profit before Tax	790	525	170	315
Dividends	110	60	30	30
Retained earnings	400	245	70	14

18. In which year was the tax per rupee of 'profit before tax' lowest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

19. In which year was the sales per rupee of share capital highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

20. In which year was the profit before tax per rupee of sales highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

21. In which year was the percentage addition to reserves over previous years reserves the highest?

(a) 1991 (b) 1992

(c) 1993 (d) 1994

22. Amount of the reserves at the end of 1994 is

(a) Rs.935 lakh

(b) Rs.915 lakh

(c) Rs.230 lakh

(d) None of these

Directions for Questions 23 to 27: *Answer the questions on the basis of the information given below.*

Market share in four metropolitan cities				
Period/ Product	Mumbai 1993-94	Kolkata 1993-94	Delhi 1993-94	Chennai 1993-94
HD	20-15	35-30	20-15	20-30
CO	20-25	30-15	15-10	20-15
BN	45-40	25-35	35-35	10-10
MT	15-20	10-20	10-10	50-45

23. The maximum percentage decrease in market share is

(a) 60% (b) 50%

(c) 53.3% (d) 20%

24. The city in which minimum number of products increased their market shares in 1993-94 is

(a) Mumbai (b) Delhi

(c) Kolkata (d) Chennai

25. The market shares of which products did not decrease between 1993-94 in any city?

(a) HD (b) CO

(c) BN (d) None of these

26. The number of products which had 100% market share in four metropolitan cities is

(a) 0 (b) 1

(c) 2 (d) 3

27. The number of products which doubled their market shares in one or more cities is

(a) 0 (b) 1

(c) 2 (d) 3

1995

Directions for Questions 28 to 32: *Answer the questions on the basis of the information given below.*

Machine M1 as well as machine M2 can independently produce either product P or product Q. The time taken by machines M1 and M2 (in minutes) to produce one unit of product P and product Q are given in the table below: (Each machine works 8 hour per day).

Product	M1	M2
P	10	8
Q	6	6

28. What is the maximum number of units that can be manufactured in one day?

(a) 140 (b) 160

(c) 120 (d) 180

29. If M1 works at half its normal efficiency, what is the maximum number of units produced, if at least one unit of each must be produced?

(a) 96 (b) 89

(c) 100 (d) 119

30. What is the least number of machine hours required to produce 30 pieces of P and 25 pieces of Q respectively?

(a) 6 hr 30 min (b) 7 hr 24 min

(c) 6 hr 48 min (d) 4 hr 6 min

31. If the number of units of P is to be three times that of Q, what is the maximum idle time to maximize total units manufactured?

(a) 0 min

(b) 24 min

(c) 1 hr

(d) 2 hr

32. If equal quantities of both are to be produced, then out of the four choices given below, the least efficient way would be

(a) 48 of each with 3 min idle

(b) 64 of each with 12 min idle

(c) 53 of each with 10 min idle

(d) 71 of each with 9 min idle

Directions for Questions 33 to 37: *Answer the questions on the basis of the information given below.*

A company produces five types of shirts — A, B, C, D and E — using cloth of three qualities — high, medium and low —, using dyes of three qualities — high, medium and low. One shirt requires 1.5 m of cloth. The following table gives respectively:

1. The number of shirts (of each category) produced, in thousands,
2. The percentage distribution of cloth quality in each type of shirt, and
3. The percentage distribution of dye quality in each type of shirt.

		Distribution of cloth (%)				Distribution of dye (%)			
Shirt type	**Number in thousands**	**Shirt type**	**High**	**Medium**	**Low**	**Shirt type**	**High**	**Medium**	**Low**
A	20	A	80	20	–	A	70	15	15
B	30	B	30	40	30	B	20	50	30
C	30	C	–	70	30	C	–	60	40
D	10	D	–	60	40	D	–	40	60
E	10	E	–	10	90	E	–	20	80

33. What is the total requirement of cloth?

(a) 1,50,000 m (b) 2,00,000 m

(c) 2,25,000 m (d) 2,50,000 m

34. How many metres of low-quality cloth is consumed?

(a) 22,500 m (b) 46,500 m

(c) 60,000 m (d) 40,000 m

35. How many metres of high quality cloth is consumed by A-type shirts?

(a) 8,000 m (b) 112,000 m

(c) 24,000 m (d) 30,000 m

36. What is the ratio of the three qualities of dyes in high-quality cloth?

(a) 2 : 3 : 5 (b) 1 : 2 : 5

(c) 7 : 9 : 10 (d) Cannot be determined

37. What is the ratio of low-quality dye used for C-type shirts to that used for D- type shirts?

(a) 3 : 2 (b) 2 : 1

(c) 1 : 2 (d) 2 : 3

1996

Directions for Questions 38 to 42: *Answer the questions on the basis of the information given below.*

The data given in the table shows the investment details in country 'Fortune Land' of companies A, B, C, D, E and F. Figures in the table are in US dollars in billions.

	A	B	C	D	E	F
Year 1	2.5	4.6	5.8	3.11	10.6	7.8
Year 2	6.7	7.5	12.5	5.6	17.4	25.3
Year 3	11.5	18.7	21.2	7.7	29.8	60.1

38. What is the percentage increase in investment of B, C, D and E from year 1 to year 3?

(a) 121% (b) 321%

(c) 221% (d) 300%

39. What is the ratio of investments of E to F for the years 1 to 3?

(a) 31 : 19 (b) 19 : 31

(c) 20 : 29 (d) 41 : 53

40. What is D's contribution as a percentage of total investments in year 2?

(a) 8.2% (b) 4.5%

(c) 7.4% (d) 9.2%

41. For which company is investment not increased from year 1 to year 3?

(a) C

(b) D

(c) F

(d) None of these

42. What is the percentage difference in investments of companies A, B, C and companies D, E, F in year 2?

(a) 75%

(b) 81%

(c) 67.5%

(d) 42.3%

Directions for Questions 43 to 47: *Answer the questions on the basis of the information given below.*

The following table gives data about certain coffee producers in India.

	Production ('000 tonnes)	Capacity utilisation (%)	Sales ('000 tonnes)	Total sales value (Rs. in crores)
Brooke Bond	2.97	76.50	2.55	31.15
Nestle	2.48	71.20	2.03	26.75
Lipton	1.64	64.80	1.26	15.25
MAC	1.54	59.35	1.47	17.45
Total (including others)	11.60	61.30	10.67	132.80

43. What is the maximum production capacity (in '000 tonnes) of Lipton for coffee?

(a) 2.53 (b) 2.85

(c) 2.24 (d) 2.07

44. Which company out of the four companies mentioned above has the maximum unutilised capacity (in '000 tonnes)?

(a) Lipton (b) Nestle

(c) Brooke Bond (d) MAC

45. What is the approximate total production capacity (in '000 tonnes) for coffee in India?

(a) 18

(b) 20

(c) 18.7

(d) Data insufficient

46. The highest price for coffee per kilogram is for

(a) Nestle

(b) MAC

(c) Lipton

(d) Data insufficient

47. What percent of the total market share (by sales value) is controlled by 'others'?

(a) 60% (b) 32%

(c) 67% (d) insufficient data

Directions for Questions 48 to 52: *Answer the questions on the basis of the information given below.*

Mulayam Software Co., before selling a package to its clients, follows the given schedule.

Month	Stage	Cost (Rs. '000 per man / month)
1-2	Specification	40
3-4	Design	20
5-8	Coding	10
9-10	Testing	15
11-15	Maintenance	10

The number of people employed in each month is:

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of people employed	2	3	4	3	4	5	5	4	4	1	3	3	1	1	1

48. Due to overrun in 'design', the design stage took 3 months, i.e. months 3, 4 and 5. The number of people working on design in the fifth month was 5. Calculate the percentage change in the cost incurred in the fifth month. (Due to improvement in 'coding' technique, this stage was completed in months 6-8 only.)

(a) 225% (b) 150%

(c) 275% (d) 240%

49. With reference to the above question, what is the cost incurred in the new 'coding' stage? (Under the new technique, 4 people work in the sixth month and 5 in the eighth.)

(a) Rs. 1,40,000 (b) Rs. 1,50,000

(c) Rs. 1,60,000 (d) Rs. 1,70,000

50. What is the difference in cost between the old and the new techniques?

(a) Rs. 30,000 (b) Rs. 60,000

(c) Rs. 70,000 (d) Rs. 40,000

51. Under the new technique, which stage of software development is most expensive for Mulayam Software Co.?

(a) Testing (b) Specification

(c) Coding (d) Design

52. Which five consecutive months have the lowest average cost per man-month under the new technique?

(a) 1-5 (b) 9-13

(c) 11-15 (d) None of these

Directions for Questions 53 to 57: *Answer the questions on the basis of the information given below.*

The amount of money invested (rupees in crores) in the core infrastructure areas of two districts, Chittoor and Khammam of Andhra Pradesh, is as follows.

Chittor district			Khammam district		
Core area	**1995**	**1996**	**Core area**	**1995**	**1996**
Electricity	815.2	1054.2	**Electricity**	2065.8	2365.1
Chemical	389.5	476.7	**Chemical**	745.3	986.4
Thermal	632.4	565.9	**Thermal**	1232.7	1026.3
Solar	468.1	589.6	**Solar**	1363.5	1792.1
Nuclear	617.9	803.1	**Nuclear**	1674.3	2182.1
Total	2923.1	3489.5	**Total**	7081.6	8352.0

53. By what per cent was the total investment in the two districts more in 1996 as compared to 1995?

(a) 14%

(b) 21%

(c) 24%

(d) 18%

54. The investment in electricity and thermal energy in 1995 in these two districts formed what per cent of the total investment made in that year?

(a) 41%

(b) 47%

(c) 52%

(d) 55%

55. In Khammam district, the investment in which area in 1996 showed the highest percentage increase over the investment in that area in 1995?

(a) Electricity

(b) Chemical

(c) Solar

(d) Nuclear

56. Approximately how many times was the total investment in Chittoor to the total investment in Khammam?

(a) 2.8

(b) 2

(c) 2.4

(d) 1.7

57. If the total investment in Khammam shows the same rate of increase in 1997, as it had shown from 1995 to 1996, what approximately would be the total investment in Khammam in 1997?

(a) Rs. 9,850 crore

(b) Rs. 10,020 crore

(c) Rs. 9,170 crore

(d) Rs. 8,540 crore

1997

Directions for Questions 58 to 62: Answer the questions on the basis of the information given below.

Hotels in Mumbai

Project	No. of rooms	Cost (Rs. in crores)	Year of completion	Company
Windsor Manor	600	275	1999	IHCL
Leela Hotels	310	235	1999	Leela Hotels
Mumbai Heights	250	250	1998	Bombay Hotels
Royal Holidays	536	225	1998	Lokhandwala Group
Majestic Holiday	500	250	1999	Raheja Group
Supremo Hotel	300	300	1999	ITC
Hyatt Regency	500	250	2000	Asian Hotels

Note: All projects start in 1997.

58. Which of the following had the least cost per room?

(a) Lokhandwala Group (b) Raheja Group

(c) IHCL (d) ITC

59. Which of the following has the maximum number of rooms per crore of rupees?

(a) IHCL (b) Raheja Group

(c) Lokhandwala Group (d) ITC

Additional directions for questions 60 to 62: *Assume that the cost of the project is incurred in the year of completion; interest is charged at the rate of 10% per annum.*

60. What is the cost incurred for projects completed in 1998?

(a) Rs. 475 crore (b) Rs. 500 crore

(c) Rs. 522.5 crore (d) Rs. 502.5 crore

61. What is the cost incurred for projects completed in 1999?

(a) Rs. 1,282.6 crore

(b) Rs. 1,270 crore

(c) Rs. 1,805.1 crore

(d) Rs. 1,535 crore

62. What is the approximate cost incurred for projects completed by 2000?

(a) Rs. 1,785

(b) Rs. 2,140

(c) Rs. 2,320

(d) None of these

Directions for Questions 63 to 67: *Answer the questions on the basis of the information given below.*

The following table gives the tariff [in paise per kilo-watt-hour (kWh)] levied by the UPSEB in 1994-95, in four sectors and the regions within them. The table also gives the percentage change in the tariff as compared to 1991-92.

	Region 1		Region 2		Region 3		Region 4		Region 5	
	P/kWh	%	P/kWh	% incr.	P/kWh	% incr.	P/kWh	% incr.	P/kWh	% incr.
Sector 1	425	+15	472	+5	420	–4	415	+8	440	+10
Sector 2	430	+12	468	+8	448	+7	423	–3	427	+11
Sector 3	428	+8	478	–4	432	+6	441	+10	439	+8
Sector 4	434	–5	470	+15	456	+10	451	+12	446	–12

63. If the amount of power consumed by the various regions in sector 1 is the same, then as compared to 1991-92 the net tariff in 1994-95

(a) increased by 6.5% (b) decreased by 3.5%

(c) increased by 10.2% (d) decreased by 7.3%

64. What was the approximate average tariff in region 3 in 1991-92?

(a) 407 (b) 420

(c) 429 (d) None of these

Additional directions for questions 65 to 67: *The UPSEB supplies power under four categories: urban (25%), domestic (20%), industrial (40%) and rural (15%). In 1994-95, the total power produced by the UPSEB was, 7875 megawatts.*

65. In 1994-95, if there was 10% decrease in the domestic consumption of power as compared to that in 1991-92, what was the consumption of power in the rural sector in 1991-92?

(a) 1,312 megawatts (b) 1,422 megawatts

(c) 1,750 megawatts (d) None of these

66. In the given 2 years, what is the total tariff paid by the urban sector?

(a) Rs. 22.4 lakh

(b) Rs. 21.6 lakh

(c) Rs. 27.2 lakh

(d) Cannot be determined

67. Which of the following statements is true?

(a) The average tariff in region 4 is 437.5 p/kWh

(b) The average tariff in region 2 is greater than the average tariff in region 5

(c) In 1991-92, the industrial sector contributed to about 42% of the total revenue from power

(d) None of these

Directions for Questions 68 to 75: *Answer the questions on the basis of the information given below.*

The table given below gives the annual details of loans from rural banks and agricultural loans over the years 1970 to 1983. Using this data answer the questions that follow.

Year	Loan from Rural Banks			Agricultural Loans		
	Number of rural banks	Average number of loans	Average size (in Rs.)	No. ('000)	Value (Rs. in millions)	Consumer price index
1970	90	28	109	18.3	2.00	43
1971	115	39	133	20.4	3.58	49
1972	130	52	178	25.1	6.26	55
1974	260	98	243	41.2	34.54	70
1975	318	121	283	51.4	52.21	78
1980	605	288	567	135.7	498.4	131
1981	665	312	622	152.8	612.4	137
1983	840	380	711	211.6	915.7	149

68. In 1974, the amount of agricultural loans formed what percentage of the total loans?

(a) 85% (b) 71%

(c) 77% (d) Cannot be determined

69. From the given data, the number of rural loans up to 1980 formed approximately what percentage of those in 1983?

(a) 112% (b) 80%

(c) 97% (d) Cannot be determined

70. Which of the following pairs of years showed the maximum increase in the number of rural bank loans?

(a) 1971-72 (b) 1974-75

(c) 1970-71 (d) 1980-81

71. What is the value of the agricultural loans in 1983 at 1970 prices?

(a) Rs.326 (b) Rs.264

(c) Rs.305 (d) None of these

72. In which year was the number of rural bank loans per rural bank least?

(a) 1974

(b) 1971

(c) 1970

(d) 1975

73. What is the simple annual rate of increase in the number of agricultural loans from 1970 to 1983?

(a) 132%

(b) 81%

(c) 75%

(d) 1056%

Additional directions for questions 74 and 75: *If the consumer price index for 1970 is to be taken as 105 and the indices for the subsequent years are to be corrected accordingly, then answer 184 and 185.*

74. By roughly how many points do the indices for 1983 and 1975 differ?

(a) 174

(b) 180

(c) 188

(d) 195

75. What is the value of the loans in 1980 at 1983 prices?

(a) Rs.570 million

(b) Rs.680 million

(c) Rs.525 million

(d) Rs.440 million

1998

Directions for Questions 76 to 81: *Answer the questions on the basis of the information given below.*

The following table gives the quantity of apples (in tonnes) arriving at New Delhi market from various states in a particular year. The month in which demand was more than supply, the additional demand was met by the stock from cold storage.

Month	State			Cold storage	Total
	HP	UP	J & K		
April	7	0	7	59	73
May	12	1	0	0	13
June	9,741	257	8,017	0	18,015
July	71,497	0	18,750	0	90,247
August	77,675	0	20,286	0	97,961
September	53,912	0	56,602	0	1,10,514
October	12,604	0	79,591	24	92,219
November	3,499	0	41,872	42	45,413
December	1,741	0	14,822	15	16,578
January	315	0	10,922	201	11,438
February	25	0	11,183	77	11,285
March	0	0	683	86	769

76. What was the maximum percentage of apples supplied by any state in any of the months?

(a) 99% (b) 95%

(c) 88% (d) 100%

77. Which state supplied the maximum number of apples?

(a) UP (b) HP

(c) J & K (d) Cold storage

78. Which state supplied the highest percentage of apples from the total apples supplied?

(a) HP (b) UP

(c) J & K (d) Cannot be determined

79. In which of the following periods was the supply greater than the demand?

(a) August-March (b) June-October

(c) May-September (d) Cannot be determined

80. If the yield per tree was 40 kg, then from how many trees were the apples supplied to New Delhi (in millions) during the year?

(a) 11.5 (b) 12.5

(c) 13.5 (d) Cannot be determined

81. Using the data in question 207, if there were 250 trees per hectare, then how many hectares of land was used?

(a) 9,400 hectares

(b) 49,900 hectares

(c) 50,000 hectares

(d) 49,450 hectares

1999

Directions for Questions 82 and 83: *Answer the questions on the basis of the information given below.*

The following table presents the sweetness of different items relative to sucrose, whose sweetness is taken to be 1.00.

Lactose	0.16
Maltose	0.32
Glucose	0.74
Sucrose	1.00
Fructose	1.70
Saccharin	675.00

82. What is the minimum amount of sucrose (to the nearest gram) that must be added to one gram of saccharin to make a mixture that will be at least 100 times as sweet as glucose?

(a) 7

(b) 8

(c) 9

(d) 100

83. Approximately how many times sweeter than sucrose is a mixture consisting of glucose, sucrose and fructose in the ratio of 1 : 2 : 3?

(a) 1.3

(b) 1.0

(c) 0.6

(d) 2.3

2000

Directions for Questions 84 to 88: *Answer these questions with reference to the table given below.*

Information Technology Industry in India

(Figures are in million US dollars)

		1994-95	1995-96	1996-97	1997-98	1998-99
Software						
	Domestic	350	490	670	950	1250
	Exports	485	734	1083	1750	2650
Hardware						
	Domestic	590	1037	1050	1205	1026
	Exports	177	35	286	201	4
Peripherals						
	Domestic	148	196	181	229	329
	Exports	6	6	14	19	18
Training		107	143	185	263	302
Maintenance		142	172	182	221	236
Networking and others		36	73	156	193	237
Total		2041	2886	3807	5031	6052

84. The total annual exports lies between 35 and 40% to the total annual business of the IT industry, in

(a) 1997-98 and 1994-95

(b) 1996-97 and 1997-98

(c) 1996-97 and 1998-99

(d) 1996-97 and 1994-95

85. The highest percentage growth in the total IT business, relative to the previous year was achieved in

(a) 1995-96 (b) 1996-97

(c) 1997-98 (d) 1998-99

86. Which one of the following statements is correct?

(a) The annual software exports steadily increased but annual hardware exports steadily declined during 1994-99.

(b) The annual peripheral exports steadily increased during 1994-99.

(c) The IT business in training during 1994-99 was higher than the total IT business in maintenance during the same period.

(d) None of the above

Additional directions for questions 87 and 88:

For any activity, A, year X dominates year Y if the IT business in activity A, in the year X is greater than the IT business in activity A in the year Y. For any two IT business activities, A and B, year X dominates year Y if

I. the IT business in activity A, in the year X, is greater than or equal to the IT business in activity A in the year Y,

II. the IT business in activity B, in the year X, is greater than or equal to the IT business in activity B in the year Y and

III. there should be strict inequality in the case of at least one activity.

87. For the IT hardware business activity, which one of the following is not true?

(a) 1997-98 dominates 1996-97

(b) 1997-98 dominates 1995-96

(c) 1995-96 dominates 1998-99

(d) 1998-99 dominates 1996-97

88. For the two IT business activities, hardware and peripherals, which one of the following is true?

(a) 1996-97 dominates 1995-96

(b) 1998-99 dominates 1995-96

(c) 1997-98 dominates 1998-99

(d) None of these

Directions for Questions 89 to 93: *Answer these questions based on the data provided in the table below.*

Factory Sector by Type of Ownership

All figures in the table are in percentage of the total for the corresponding column

Sector	Factories	Employment	Fixed capital	Gross output	Value added
Public:	7	27.7	43.2	25.8	30.8
Central Government	1	10.5	17.5	12.7	14.1
States or local government	5.2	16.2	24.3	11.6	14.9
Central and state or local government	0.8	1.0	1.4	1.5	1.8
Joint:	1.8	5.1	6.8	8.4	8.1
Wholly private	90.3	64.6	46.8	63.8	58.7
Others	0.9	2.6	3.2	2.0	2.4
Total	100	100	100	100	100

89. Suppose the average employment level is 60 per factory. The average employment in 'wholly private' factories is approximately

(a) 43

(b) 47

(c) 50

(d) 54

90. Among the firms in different sectors, value added per employee is highest in

(a) Central Government

(b) Central and States or Local Governments

(c) Joint sector

(d) Wholly private

91. Capital productivity is defined as the gross output value per rupee of fixed capital. The three sectors with the higher capital productivity, arranged in descending order are

(a) Joint, Wholly private, Central and States or Local Governments

(b) Wholly private, Joint, Central and States or Local Governments

(c) Wholly private, Central and States or Local Governments, Joint

(d) Joint, Wholly private, Central

92. A sector is considered 'pareto efficient' if its value added per employee and its value added per rupee of fixed capital is higher than those of all other sectors. Based on the table data, the pareto efficient sector is

(a) Wholly private

(b) Joint

(c) Central and State or Local

(d) others

93. The total value added in all sectors is estimated at Rs. 1,40,000 crore. Suppose the number of firms in the joint sector is 2,700. The average value added per factory, in the Central Government is

(a) Rs. 141 crore

(b) Rs. 14.1 crore

(c) Rs. 131 crore

(d) Rs. 13.1 crore

Directions for Questions 94 to 97: *Answer the questions based on the table below.*

The table shows trends in external transactions of Indian corporate sector during the period 1993-94 to 1997-98. In addition, following definitions hold good:

$Sales_i$, $Imports_i$, and $Exports_i$ respectively denote the sales, imports and exports in year i.

Deficit for year i, $Deficit_i = Imports_i - Exports_i$

Deficit Intensity in year i, $DI_i = Deficit_i / Sales_i$

Growth rate of deficit intensity in year i,

$GDI_i = (DI_i - DI_{i-1}) / DI_{i-1}$

Further, note that all imports are classified as either raw material or capital goods.

Trends in External Transactions of Indian Corporate Sector

(All figures in per cent)

Year	1997-98	1996-97	1995-96	1994-95	1993-94
Export intensity*	9.2	8.2	7.9	7.5	7.3
Import intensity*	14.2	16.2	15.5	13.8	12.4
Imported raw material/Total cost of raw material	20.2	19.2	17.6	16.3	16
Imported capital goods/Gross fixed assets	17.6	9.8	11.8	16.3	19.5

* Ratio of Exports (or Imports) to sales.

94. The highest growth rate in deficit intensity was recorded in

(a) 1994-95

(b) 1995-96

(c) 1996-97

(d) 1997-98

95. The value of the highest growth rate in deficit intensity is approximately

(a) 8.45%

(b) 2.15%

(c) 33.3%

(d) 23.5%

96. In 1997-98 the total cost of raw material is estimated as 50% of sales of that year. The turnover of gross fixed assets, defined as the ratio of sales to gross fixed assets, in 1997-98 is, approximately

(a) 3.3

(b) 4.3

(c) 0.33

(d) Not possible to determine

97. Which of the following statements can be inferred to be true from the given data?

(a) During the 5-year period between 1993-94 and 1997-98 exports have increased every year.

(b) During the 5-year period 1993-94 and 1997-98, imports have decreased every year.

(c) Deficit in 1997-98 was lower than that in 1993-94.

(d) Deficit intensity has increased every year between 1993-94 and 1996-97.

2001

Directions for Questions 98 to 101: *Answer the questions based on the table given below.*

The following table describes garments manufactured based upon the colour and size for each lay. There are four sizes: M – medium, L – large, XL – extra large and XXL – extra extra large. There are three colours: yellow, red and white.

Lay	Number of Garments											
	Yellow				Red				White			
Lay No.	M	L	XL	XXL	M	L	XL	XXL	M	L	XL	XXL
1	14	14	7	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	42	42	21	0
3	20	20	10	0	18	18	9	0	0	0	0	0
4	20	20	10	0	0	0	0	0	30	30	15	0
5	0	0	0	0	24	24	12	0	30	30	15	0
6	22	22	11	0	24	24	12	0	32	32	16	0
7	0	24	24	12	0	0	0	0	0	0	0	0
8	0	20	20	10	0	2	2	1	0	0	0	0
9	0	20	20	10	0	0	0	0	0	22	22	11
10	0	0	0	0	0	26	26	13	0	20	20	10
11	0	22	22	11	0	26	26	13	0	22	22	11
12	0	0	2	2	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	20	20
14	0	0	0	0	0	0	0	0	0	0	22	22
15	0	0	10	10	0	0	2	2	0	0	22	22
16	0	0	0	0	1	0	0	0	1	0	0	0
17	0	0	0	0	0	5	0	0	0	0	0	0
18	0	0	0	0	0	32	0	0	0	0	0	0
19	0	0	0	0	0	32	0	0	0	0	0	0
20	0	0	0	0	0	5	0	0	0	0	0	0
21	0	0	0	18	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	26	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	22
24	0	0	0	8	0	0	0	1	0	0	0	0
25	0	0	0	8	0	0	0	0	0	0	0	12
26	0	0	0	0	0	0	0	1	0	0	0	14
27	0	0	0	8	0	0	0	2	0	0	0	12
Production	76	162	136	97	67	194	89	59	135	198	195	156
Order	75	162	135	97	67	194	89	59	135	197	195	155
Surplus	1	0	1	0	0	0	0	0	0	1	0	1

98. How many lays are used to produce yellow fabrics?

(a) 10
(b) 11
(c) 12
(d) 14

99. How many lays are used to produce XXL fabrics?

(a) 15
(b) 16
(c) 17
(d) 18

100. How many lays are used to produce XXL yellow or XXL white fabrics?

(a) 8
(b) 9
(c) 10
(d) 15

101. How many varieties of fabrics, which exceed the order, have been produced?

(a) 3 (b) 4
(c) 5 (d) 6

Directions for Questions 102 to 105: *Answer the questions based on the table given below concerning the busiest 20 international airports in the world.*

No.	Name	International Airport Type	Code	Location	Passengers
1	Hartsfield	A	ATL	Atlanta, Georgia, USA	77939536
2	Chicago-O'Hare	A	ORD	Chicago, Illinois, USA	72568076
3	Los Angeles	A	LAX	Los Angeles, California, USA	63876561
4	Heathrow Airport	E	LHR	London, United Kingdom	62263710
5	DFW	A	DFW	Dallas/Ft. Worth, Texas, USA	60000125
6	Haneda Airport	F	HND	Tokyo, Japan	54338212
7	Frankfurt Airport	E	FRA	Frankfurt, Germany	45858315
8	Roissy-Charles de Gaulle	E	CDG	Paris, France	43596943
9	San Francisco	A	SFO	San Francisco, California, USA	40387422
10	Denver	A	DIA	Denver, Colorado, USA	38034231
11	Amsterdam Schiphol	E	AMS	Amsterdam, Netherlands	36781015
12	Minneapolis - St. Paul	A	MSP	Minneapolis-St. Paul, USA	34216331
13	Detroit Metropolitan	A	DTW	Detroit, Michigan, USA	34038381
14	Miami	A	MIA	Miami, Florida, USA	33899246
15	Newark	A	EWR	Newark, New Jersey, USA	33814000
16	McCarran	A	LAS	Las Vegas, Nevada, USA	33669185
17	Phoenix Sky Harbor	A	PHX	Phoenix, Arizona, USA	33533353
18	Kimpo	FE	SEL	Seoul, Korea	33371074
19	George Bush	A	IAH	Houston, Texas, USA	33089333
20	John F. Kennedy	A	JFK	New York, New York, USA	32003000

102. How many international airports of type 'A' account for more than 40 million passengers?

(a) 4 (b) 5

(c) 6 (d) 7

103. What percentage of top ten busiest airports is in the United States of America?

(a) 60% (b) 80%

(c) 70% (d) 90%

104. Of the five busiest airports, roughly, what percentage of passengers in handled by Heathrow Airport?

(a) 30

(b) 40

(c) 20

(d) 50

105. How many international airports not located in the USA handle more than 30 million passengers?

(a) 5 (b) 6

(c) 10 (d) 14

2002

Directions for Questions 106 to 111: *Answer these questions based on the tables given below:*

There are 6 refineries, 7 depots and 9 districts. The refineries are BB, BC, BD, BE, BF and BG. The depots are AA, AB, AC, AD, AE, AF and AG. The districts are AAA, AAB, AAC, AAD, AAE, AAF, AAG, AAH, and AAI. Table A gives the cost of transporting one unit from refinery to depot. Table B gives the cost of transporting one unit from depot to a district.

Table A

	BB	BC	BD	BE	BF	BG
AA	928.2	537.2	567.8	589.9	589.9	800.1
AB	311.1	596.7	885.7	759.9	759.9	793.9
AC	451.1	0	320.1	780.1	720.7	1000.1
AD	371.1	150.1	350.1	750.1	650.4	980.1
AE	1137.3	314.5	0	1157.7	1157.7	1023.4
AF	617.1	516.8	756.5	1065.9	1065.9	406.3
AG	644.3	299.2	537.2	1093.1	1093.1	623.9

Table B

	AA	AB	AC	AD	AE	AF	AG
AAA	562.7	843.2	314.5	889.1	0	754.8	537.2
AAB	532.7	803.2	284.5	790.5	95.2	659.6	442
AAC	500.7	780.2	0	457.3	205.7	549.1	331.5
AAD	232.9	362.1	286.2	275.4	523.6	525.3	673.2
AAE	345.1	268.6	316.2	163.2	555.9	413.1	227.8
AAF	450.1	644.3	346.2	372.3	933.3	402.9	379.1
AAG	654.5	0	596.7	222.7	885.7	387.6	348.5
AAH	804.1	149.6	627.2	360.4	1035.3	537.2	498.1
AAI	646	255	433.5	137.7	698.7	112.2	161.5

106. What is the least cost of sending one unit from any refinery to any district?

(a) 95.2 (b) 0

(c) 205.7 (d) 284.5

107. What is the least cost of sending one unit from any refinery to the district AAB?

(a) 0 (b) 284.5

(c) 95.2 (d) None of these

108. What is the least cost of sending one unit from refinery BB to any district?

(a) 284.5 (b) 311.1

(c) 451.1 (d) None of these

109. What is the least cost of sending petrol from refinery BB to district AAA?

(a) 765.6 (b) 1137.3

(c) 1154.3 (d) None of these

110. How many possible ways are there for sending petrol from any refinery to any district?

(a) 63 (b) 42

(c) 54 (d) 378

111. The largest cost of sending petrol from any refinery to any district is

(a) 2172.6 (b) 2193.0

(c) 2091.0 (d) None of these

Directions for Questions 112 to 114: *Answer the questions based on the table given below.*

The table below gives information about four different crops, their different quality categories and the regions where they are cultivated. Based on the information given in the table answer the questions below.

Type of Crop	Quality	Region
Crop - 1	High	R1, R2, R3, R4, R5
	Medium	R6, R7, R8
	Low	R9, R10, R11
Crop - 2	High	R5, R8, R12
	Medium	R9, R13
	Low	R6, R7, R8
Crop - 3	High	R2, R6, R7, R13
	Medium	R3, R9, R11
	Low	R1, R4
Crop - 4	High	R3, R10, R11
	Medium	R1, R2, R4
	Low	R5, R9

112. How many regions produce medium qualities of Crop-1 or Crop-2 and also produce low quality of Crop-3 or Crop-4?

(a) Zero (b) One

(c) Two (d) Three

113. Which of the following statements is true?

(a) All medium quality Crop-2 producing regions are also high quality Crop-3 producing regions.

(b) All high quality Crop-1 producing regions are also medium and low Crop-4 producing regions.

(c) There are exactly four Crop-3 producing regions, which also produce Crop-4 but not Crop-2.

(d) Some Crop-3 producing regions produce Crop-1, but not high quality Crop-2.

114. How many low quality Crop-1 producing regions are either high quality Crop-4 producing regions or medium quality Crop-3 producing regions?

(a) One (b) Two

(c) Three (d) Zero

2002

Directions for Questions 115 to 117: *Answer these questions based on the table given below.*

The following table provides data on the different countries and location of their capitals. (the data may not match the actual Latitude, Longitudes) Answer the following questions on the basis of this table.

S.No.	Country	Capital	Latitude	Longitude
1	Argentina	Buenos Aires	34.30 S	58.20 E
2	Australia	Canberra	35.15 S	149.08 E
3	Austria	Vienna	48.12 N	16.22 E
4	Bulgaria	Sofia	42.45 N	23.20 E
5	Brazil	Brasilia	15.47 S	47.55 E
6	Canada	Ottawa	45.27 N	75.42 E
7	Cambodia	Phnom Penh	11.33 N	104.55 E
8	Equador	Quito	0.15 S	78.35 E
9	Ghana	Accra	5.35 N	0.60 E
10	Iran	Teheran	35.44 N	51.30 E
11	Ireland	Dublin	53.20 N	6.18 E
12	Libya	Tripoli	32.49 N	13.07 E
13	Malaysia	Kuala Lumpur	3.90 N	101.41 E
14	Peru	Lima	12.05 S	77.0 E
15	Poland	Warsaw	52.13 N	21.0 E
16	New Zealand	Wellington	41.17 S	174.47 E
17	Saudi Arabia	Riyadh	24.41 N	46.42 E
18	Spain	Madrid	40.25 N	3.45 W
19	Sri Lanka	Colombo	6.56 N	79.58 E
20	Zambia	Lusaka	15.28 S	28.16 E

115. What percentage of cities located within 10°E and 40°E (20° East and 40° East) lie in the Southern Hemisphere?

(a) 15% (b) 20%

(c) 25% (d) 30%

116. The number of cities whose names begin with a consonant and are in the Northern Hemisphere in the table

(a) exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 1.

(b) exceeds the number of cities whose names begin with a consonant and are in the southern hemisphere by 2.

(c) is less than the number of cities whose names begin with a consonant and are in the east of the meridian by 1.

(d) is less than the number of countries whose name begins with a consonant and are in the east of the meridian by 3.

117. The ratio of the number of countries whose name starts with vowels and located in the southern hemisphere, to the number of countries, the name of whose capital cities starts with a vowel in the table above is

(a) 3 : 2 (b) 3 : 3

(c) 3 : 1 (d) 4 : 3

Directions for Questions 118 to 121: *Answer the questions based on the following information.*

The following table gives details regarding the total earnings of 15 employees and the number of days they have worked on complex, medium and simple operation in the month of June 2002. Even though the employees might have worked on an operation, they would be eligible for earnings only if they have minimum level of efficiency.

	Total Earnings				Total Days			
Emp. No	Complex	Medium	Simple	Total	Complex	Medium	Simple	Total
2001147	82.98		636.53	719.51	3.00	0.00	23.00	26.00
2001148	51.53		461.73	513.26	3.33	1.67	16.00	21.00
2001149	171.1		79.10	250.81	5.50	4.00	8.50	18.00
2001150	100.47		497.47	597.95	6.00	4.67	7.33	18.00
2001151	594.43	159.64		754.06	9.67	13.33	0.00	23.00
2001156	89.70			89.70	8.00	0.00	1.00	9.00
2001158	472.31	109.73		582.04	1.39	9.61	0.00	11.00
2001164	402.25	735.22	213.67	1351.14	5.27	12.07	0.67	18.00
2001170	576.57			576.57	21.00	0.00	0.00	21.00
2001171	286.48	6.10		292.57	8.38	4.25	0.38	13.00
2001172	512.10	117.46		629.56	10.00	8.50	3.50	22.00
2001173	1303.88			1303.88	25.50	0.00	0.50	26.00
2001174	1017.94			1017.90	26.00	0.00	0.00	26.00
2001179	46.56	776.19		822.75	2.00	19.00	0.00	21.00
2001180	116.40	1262.79		1379.19	5.00	19.00	0.00	24.00

118. The number of employees who have earned more than Rs. 50 per day in complex operations is

(a) 4 (b) 3

(c) 5 (d) 6

119. The number of employees who have earned more than Rs. 600 and having more than 80% attendance (there are 25 regular working days in June 2002; some might be coming on overtime too) is

(a) 4

(b) 5

(c) 6

(d) 7

120. The employee number of the person who has earned the maximum earnings per day in medium operation is

(a) 2001180 (b) 2001164

(c) 2001172 (d) 2001179

121. Among the employees who were engaged in complex and medium operations, the number of employees whose average earning per day in complex operations is more than average earning per day in medium operations is

(a) 2 (b) 3

(c) 5 (d) 7

Directions for Questions 122 to 129: *Answer the questions based on the table given below:*

The following table shows the revenue and expenses in millions of Euros (European currency) associated with REPSOL YPF company's oil and gas producing activities in operations in different parts of the world for 1998-2000.

REPSOL YPF'S Operations of Oil and Gas Producing Activities

S. No.	Item	Year	Total World	Spain	North Africa & Middle East	Argentina	Rest of Latin America	Far East	North Sea	Rest of the World
1	Revenue	1998	916	70	366	281	34	82	78	5
		1999	3374	55	666	2006	115	301	140	91
		2000	8328	394	1290	5539	482	603	0	20
2	Expenses	1998	668	39	255	187	57	63	52	15
		1999	1999	48	325	1168	131	204	65	58
		2000	3709	43	530	2540	252	311	0	33
3	Income before Taxes & Charges (Revenue-Expenses) =[(1)-(2)]	1998	248	31	111	94	–23	19	26	–10
		1999	1375	7	341	838	–16	97	75	33
		2000	4619	351	760	2999	230	292	0	–13
4	Taxes & Charges	1998	152	6	104	33	–3	9	6	–3
		1999	561	3	169	338	–6	39	21	–3
		2000	1845	126	404	1150	61	103	0	1
5	Net Income Taxes Charges [=(3)-(4)]	1998	96	25	7	61	–20	10	20	–7
		1999	814	4	172	500	–10	58	54	36
		2000	2774	225	356	1849	169	189	0	–14

122. How many operations (Spain, North Africa and Middle East,..) of the company accounted for less than 5% of the total revenue earned in 1999?

(a) 2 (b) 3

(c) 4 (d) None of these

123. How many operations (Spain, North Africa and Middle East…) of the company witnessed more than 200% revenue from 1999 to 2000?

(a) 1 (b) 2

(c) 3 (d) None of these

124. How many operations registered a sustained yearly increase in income before taxes and charges from 1998 to 2000?

(a) 3 (b) 4

(c) 5 (d) None of these

125. Ignoring the loss making operations of the company in 1998, for how many operations was the percentage increase in net income before taxes and charges higher than the average from 1998 to 1999?

(a) 0 (b) 1

(c) 2 (d) None of these

126. If profitability is defined as the ratio of net income after taxes and charges to expense, which of the following statements is true?

(a) The Far East operations witnessed its highest profitability in 1998.

(b) The North Sea operations increased its profitability from 1998 to 1999.

(c) The operations in Argentina witnessed a decrease in profitability from 1998 to 1999.

(d) Both 2 and 3 are true.

127. In 2000, which among the following countries had the best profitability?

(a) North Africa and Middle East

(b) Spain

(c) Rest of Latin America

(d) Far East

128. If efficiency is defined as the ratio of revenue to expenses, which operation was the least efficient in 2000?

(a) Spain (b) Argentina

(c) Far East (d) None of these

129. Of the following statements, which one is not true?

(a) The operations in Spain had the best efficiency in 2000.

(b) The Far East operations witnessed an efficiency improvement from 1999 to 2000.

(c) The North Sea operations witnessed an efficiency improvement from 1998 to 1999.

(d) In 1998, the operations in Rest of Latin America were the least efficient.

2003 (R)

Directions for Questions 130 to 132: *Answer the questions on the basis of the table given below:*

Sex Ratio (Number of females per 1,000 males) of Selected States in India : 1901-2001

	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
AP	985	992	993	987	980	986	981	977	975	972	978
Assam	919	915	896	874	875	868	869	896	910	923	932
Bihar	1061	1051	1020	995	1002	1000	1005	957	948	907	921
Goa	1091	1108	1120	1088	1084	1128	1066	981	975	967	960
Gujarat	954	946	944	945	941	952	940	934	942	934	921
Haryana	867	835	844	844	869	871	868	867	870	865	861
HP	884	889	890	897	890	912	938	958	973	976	970
J&K	882	876	870	865	869	873	878	878	892	896	900
Karnataka	983	981	969	965	960	966	959	957	963	960	964
Kerala	1004	1008	1011	1022	1027	1028	1022	1016	1032	1036	1058
MP	972	967	949	947	946	945	932	920	921	912	920
Maharashtra	978	966	950	947	949	941	936	930	937	934	922
Orissa	1037	1056	1086	1067	1053	1022	1001	988	981	971	972
Punjab	832	780	799	815	836	844	854	865	879	882	874
Rajasthan	905	908	896	907	906	921	908	911	919	910	922
TN	1044	1042	1029	1027	1012	1007	992	978	977	974	986
UP	938	916	908	903	907	998	907	876	882	876	898
WB	945	925	905	890	852	865	878	891	911	917	934
India	**972**	**964**	**955**	**950**	**945**	**946**	**941**	**930**	**934**	**927**	**933**

130. The two states which achieved the largest increases in sex ratio over the period 1901-2001 are

(a) Punjab and HP (b) HP and Kerala

(c) Assam and J & K (d) Kerala and J & K

131. Among the states which have a sex ratio exceeding 1000 in 1901, the sharpest decline over the period 1901-2001 was registered in the state of

(a) Goa (b) TN

(c) Bihar (d) Orissa

132. Each of the following statements pertains to the **number** of states with females outnumbering males in a given census year. Which of these statements is NOT correct?

(a) This number never exceeded 5 in any census year.

(b) This number registered its sharpest decline in 1971.

(c) The number of consecutive censuses in which this number remained unchanged never exceeded 3.

(d) Prior to the 1971 census, this number was never less than 4.

2003 (L)

Directions for Questions 133 to 135: *In each question, there are two statements: A and B, either of which can be true or false on the basis of the information given below.*

A research agency collected the following data regarding the admission process of a reputed management school in India.

Year	Gender	Number bought application forms	Number appeared for written test	Number called for interviews	Number selected for the course
2002	Male	61205	59981	684	171
	Female	19236	15389	138	48
2003	Male	63298	60133	637	115
	Female	45292	40763	399	84

Choose (a) if only A is true — Choose (b) if only B is true

Choose (c) if both A and B are true — Choose (d) if neither A nor B is true

133. Statement A: The success rate of moving from written test to interview stage for males was worse than for females in 2003.

Statement B: The success rate of moving from written test to interview stage for females was better in 2002 than in 2003.

134. Statement A: In 2002, the number of females selected for the course as a proportion of the number of females who bought application forms, was higher than the corresponding proportion for males.

Statement B: In 2002, among those called for interview, males had a greater success rate than females.

135. Statement A: The percentage of absentees in the written test among females decreased from 2002 to 2003.

Statement B: The percentage of absentees in the written test among males was larger than among females in 2003.

Directions for Questions 136 to 138: *Answer the questions on the basis of the information given below.*

One of the functions of the Reserve Bank of India is to mobilize funds for the Government of India by issuing securities. The following table shows details of funds mobilized during the period July 2002 - July 2003. Notice that on each date there were two rounds of issues, each with a different maturity.

Date of issue	Notified amount	Maturity	Competitive bids received	Non-competitive bids received	Competitive bids accepted		Non-competitive bids accepted		Total amount mobilized	Coupon rate %	Implicit yield %
	Rs. Crore	Years	No.	No.	No.	Value	No.	Value	Rs. Crore		
17-Jul-02	40	15	229	23	66	15.21	23	0.37	16	8.07	7.80
17-Jul-02	30	10	145	12	90	29.88	12	0.12	30	6.72	6.72
5-Aug-02	50	9	324	13	105	49.68	13	0.33	50	9.39	7.24
5-Aug-02	20	24	163	9	34	19.81	9	0.19	20	10.18	7.93
28-Aug-02	50	15	260	26	157	48.92	26	1.08	50	7.46	7.46
28-Aug-02	20	30	119	15	67	19.61	15	0.39	20	7.95	7.95
11-Sep-02	40	15	261	22	152	38.93	22	1.07	40	7.46	7.44
11-Sep-02	30	20	131	20	98	29.44	20	0.56	30	8.35	7.70
9-Oct-02	40	11	361	26	119	39.22	26	0.78	40	7.27	7.14
9-Oct-02	30	30	91	15	39	29.52	15	0.48	30	7.95	7.89
7-Nov-02	40	17	245	14	20	39.71	14	0.29	40	10.03	7.26
7-Nov-02	30	24	166	11	49	29.70	11	0.31	30	10.18	7.48
9-Apr-03	40	20	245	25	65	39.53	25	1.47	40	6.30	6.30
9-Apr-03	50	11	236	24	201	49.40	24	0.60	50	7.37	5.98
23-Apr-03	50	15	319	26	134	48.98	26	1.02	50	6.25	6.10
23-Apr-03	20	29	131	19	9	19.39	19	0.61	20	7.95	6.33
5-May-03	60	10	314	14	98	59.69	14	0.31	60	7.27	5.97
5-May-03	30	20	143	14	118	29.58	14	0.42	30	6.30	6.35
4-Jun-03	30	25	187	19	15	28.50	19	1.50	30	6.13	6.13
4-Jun-03	60	9	378	21	151	59.09	21	0.91	60	6.85	5.76
2-Jul-03	50	11	298	20	116	49.05	20	0.95	50	7.37	5.76
2-Jul-03	30	25	114	20	45	28.64	20	1.36	30	6.31	6.10
16-Jul-03	60	17	371	29	115	57.00	29	3.10	60	6.35	5.97
16-Jul-03	30	29	134	22	12	29.32	22	0.68	30	7.95	6.20
Total	930								906		

136. How many times was the issue of securities under-subscribed, i.e., how often did the total amount mobilized fall short of the amount notified?

(a) 0 (b) 1

(c) 2 (d) 3

137. Which of the following is true?

(a) The second round issues have a higher maturity than the first round for all dates.

(b) The second round issue of any date has a lower maturity only when the first round notified amount exceeds that of the second round.

(c) On at least one occasion, the second round issue having lower maturity received a higher number of competitive bids.

(d) None of the above three statements is true.

138. Which of the following statements is NOT true?

(a) Competitive bids received always exceed non-competitive bids received.

(b) The number of competitive bids accepted does not always exceed the number of non-competitive bids accepted.

(c) The value of competitive bids accepted on any particular date is never higher for higher maturity.

(d) The value of non-competitive bids accepted in the first round is always greater than that in the second round.

Directions for Questions 139 to 141: Answer the questions on the basis of the information given below.

Details of the top 20 MBA schools in the US as ranked by US News and World Report, 1997 are given below.

School	Overall ranking	Ranking by Academics	Ranking by recruiters	Ranking by placement	Median starting salary	% employed	Annual tuition fee
Stanford University	1	1	3	1	$82,000	98.9	$23,100
Harvard University	2	1	2	4	$80,000	96.4	$23,840
University of Pennsylvania	3	1	4	2	$79,000	100.0	$24,956
Massachusetts Institute of Technology	4	1	4	3	$78,000	98.8	$23,900
University of Chicago	5	1	8	10	$65,000	98.4	$23,930
Northwestern University	6	1	1	11	$70,000	93.6	$23,025
Columbia University	7	9	10	5	$83,000	96.2	$23,830
Dartmouth College	8	12	11	6	$70,000	98.3	$23,700
Duke Univrsity	9	9	7	8	$67,500	98.5	$24,380
University of California—Berkeley	10	7	12	12	$70,000	93.7	$18,788
University of Virginia	11	12	9	9	$66,000	98.1	$19,627
University of Michigan—Ann Arbor	12	7	6	14	$65,000	99.1	$23,178
New York University	13	16	19	7	$70,583	97	$23,554
Carnegie Mellon University	14	12	18	13	$67,200	96.6	$22,200
Yale University	15	18	17	22	$65,000	91.5	$23,220
Univ. of North Carolina—Chapel Hill	16	16	16	16	$60,000	96.8	$14,333
University of California—Los Angeles	17	9	13	38	$65,000	82.2	$19,431
University of Texas—Austin	18	18	13	24	$60,000	97.3	$11,614
Indiana University—Bloomington	19	18	20	17	$61,500	95.2	$15,613
Cornell University	20	12	15	36	$64,000	85.1	$23,151

139. Madhu has received admission in all schools listed above. She wishes to select the highest overall ranked school whose a) annual tuition fee does not exceed $23,000 and b) median starting salary is at least $70,000. Which school will she select?

(a) University of Virginia.

(b) University of Pennsylvania

(c) Northwestern University

(d) University of California - Berkeley

140. In terms of staring salary and tuition fee, how many schools are uniformly better (higher median starting salary AND lower tuition fee) than Dartmouth College?

(a) 1 (b) 2

(c) 3 (d) 4

141. How many schools in the list above have single digit rankings on at least 3 of the 4 parameters (overall ranking, ranking by academics, ranking by recruiters and ranking by placement)?

(a) 10 (b) 5

(c) 7 (d) 8

Directions for Questions 142 and 143: *Answer the questions on the basis of the information given below.*

An industry comprises four firms (A, B, C, and D). Financial details of these firms and of the industry as a whole for a particular year are given below. Profitability of a firm is defined as profit as a percentage of sales.

Figures in Rs.	A	B	C	D	Total
Sales	24568	25468	23752	15782	89570
Operating costs	17198	19101	16151	10258	62708
Interest costs	2457	2292	2850	1578	9177
Profit	4914	4075	4750	3946	17684

142. Which firm has the highest profitability?

(a) A (b) B

(c) C (d) D

143. If firm A acquires firm B, approximately what percentage of the total market (total sales) will they corner together?

(a) 55% (b) 45%

(c) 35% (d) 50%

2005

Directions for Questions 144 to 146: *Answer the questions on the basis of the information given below:*

The table below reports the gender, designation and age-group of the employees in an organization. It also provides information on their commitment to projects coming up in the months of January (Jan), February (Feb), March (Mar) and April (Apr), as well as their interest in attending workshops on: Business Opportunities (BO), Communication Skills (CS), and E-Governance (EG).

Sl. No.	Name	Gender	Designation	Age group	Committed to projects during	Interested in workshop on
1	Anshul	M	Mgr	Y	Jan, Mar	CS, EG
2	Bushkant	M	Dir	I	Feb, Mar	BO, EG
3	Charu	F	Mgr	I	Jan, Feb	BO, CS
4	Dinesh	M	Exe	O	Jan, Apr	BO, CS, EG
5	Eashwaran	N	Dir	O	Feb, Apr	BO
6	Fatima	F	Mgr	Y	Jan, Mar	BO, CS
7	Gayatri	F	Exe	Y	Feb, Mar	EG
8	Hari	M	Mgr	I	Feb, Mar	BO, CS, EG
9	Indira	F	Dir	O	Feb, Apr	BO, EG
10	John	M	Dir	Y	Jan, Mar	BO
11	Kalindi	F	Exe	I	Jan, Apr	BO, CS, EG
12	Lavanya	F	Mgr	O	Feb, Apr	CS, EG
13	Mandeep	M	Mgr	O	Mar, Apr	BO, EG
14	Nandlal	M	Dir	I	Jan, Feb	BO, EG
15	Parul	F	Exe	Y	Feb, Apr	CS, EG
16	Rahul	M	Mgr	Y	Mar, Apr	CS, EG
17	Sunita	F	Dir	Y	Jan, Feb	BO, EG
18	Urvashi	F	Exe	I	Feb, Mar	EG
19	Yamini	F	Mgr	O	Mar, Apr	CS, EG
20	Zeena	F	Exe	Y	Jan, Mar	BO, CS, EG

M = Male, F = Female; Exe = Executive, Mgr = Manager, Dir = Director; Y = Young, I = In between, O = Old

For each workshop, exactly four employees are to be sent, of which at least two should be Females and at least one should be Young. No employee can be sent to a workshop in which he she is not interested in. An employee cannot attend the workshop on

- Communication Skills, if he/she is committed to internal projects in the month of January.
- Business Opportunities, if he/she is committed to internal projects in the month of February.
- E-governance, if he/she is committed to internal projects in the month of March.

144. Assuming that Parul and Hari are attending the workshop on Communication Skills (CS), then which of the following employees can possibly attend the CS workshop?

(a) Rahul and Yamini
(b) Dinesh and Lavanya
(c) Anshul and Yamini
(d) Fatima and Zeena

145. How many Executives (Exe) cannot attend more than one workshop?

(a) 2 (b) 3
(c) 15 (d) 16

146. Which set of employees cannot attend any of the workshops?

(a) Anshul, Charu, Eashwaran and Lavanya
(b) Anshul, Bushkant, Gayatri, and Urvashi
(c) Charu, Urvashi, Bushkant and Mandeep
(d) Anshul, Gayatri, Eashwaran and Mandeep

2005

Directions for Questions 147 to 149: *Answer the questions on the basis of the information given below:*

The table below reports annual statistics related to rice production in select states of India for a particular year.

State	Total Area (in million hectares)	% of Area Under Rice Cultivation	Production (in million tons)	Population (in millions)
Himachal Pradesh	6	20	1.2	6
Kerala	4	60	4.8	32
Rajasthan	34	20	6.8	56
Bihar	10	60	12	83
Karnataka	19	50	19	53
Haryana	4	80	19.2	21
West Bengal	9	80	21.6	80
Gujarat	20	60	24	51
Punjab	5	80	24	24
Madhya Pradesh	31	40	24.8	60
Tamilnadu	13	70	27.3	62
Maharashtra	31	50	48	97
Uttar Pradesh	24	70	67.2	166
Andhra Pradesh	28	80	112	76

147. Which two states account for the highest productivity of rice (tons produced per hectare of rice cultivation)?

(a) Haryana and Punjab
(b) Punjab and Andhra Pradesh
(c) Andhra Pradesh and Haryana
(d) Uttar Pradesh and Haryana

148. How many states have a per capita production of rice (defined as total rice production divided by its population) greater than Gujarat?

(a) 3 (b) 4
(c) 5 (d) 6

149. An intensive rice producing state is defined as one whose annual rice production per million of population is at least 400,000 tons. How many states are intensive rice producing states?

(a) 5
(b) 6
(c) 7
(d) 8

2007

Directions for Questions 150 to 154: *Answer the following questions based on the information given below:*

A low-cost airline company connects ten Indian cities, A to J. The table below gives the distance between a pair of airports and the corresponding price charged by the company. Travel is permitted only from a departure airport to an arrival airport. The customers do not travel by a route where they have to stop at more than two intermediate airports.

Sector No	Airport of Departure	Airport of Arrival	Distance between the Airports (km)	Price (Rs.)
1	A	B	560	670
2	A	C	790	1350
3	A	D	850	1250
4	A	E	1245	1600
5	A	F	1345	1700
6	A	G	1350	2450
7	A	H	1950	1850
8	B	C	1650	2000
9	B	H	1750	1900
10	B	I	2100	2450
11	B	J	2300	2275
12	C	D	460	450
13	C	F	410	430
14	C	G	910	1100
15	D	E	540	590
16	D	F	625	700
17	D	G	640	750
18	D	H	950	1250
19	D	J	1650	2450
20	E	F	1250	1700
21	E	G	970	1150
22	E	H	850	875
23	F	G	900	1050
24	F	I	875	950
25	F	J	970	1150
26	G	I	510	550
27	G	J	830	890
28	H	I	790	970
29	H	J	400	425
30	I	J	460	540

150. What is the lowest price, in rupees, a passenger has to pay for travelling by the shortest route from A to J?

(a) 2275 (b) 2850
(c) 2890 (d) 2930
(e) 3340

151. The company plans to introduce a direct flight between A and J. The market research results indicate that all its existing passengers travelling between A and J will use this direct flight if it is priced 5% below the minimum price that they pay at present. What should the company charge approximately, in rupees, for this direct flight?

(a) 1991
(b) 2161
(c) 2707
(d) 2745
(e) 2783

152. If the airports C, D and H are closed down owing to security reasons, then what would be the minimum price, in rupees, to be paid by a passenger travelling from A to J?

(a) 2275
(b) 2615
(c) 2850
(d) 2945
(e) 3190

153. If the prices include a margin of 10% over the total cost that the company incurs, then what is the minimum cost per kilometer that the company incurs in flying from A to J?

(a) 0.77
(b) 0.88
(c) 0.99
(d) 1.06
(e) 1.08

154. If the prices include a margin of 15% over the total cost that the company incurs, then which among the following is the distance to be covered in flying from A to J that minimizes the total cost per kilometer for the company?

(a) 2170
(b) 2180
(c) 2315
(d) 2350
(e) 2390

MEMORY BASED QUESTIONS

2011

Directions for questions 155 to 157 : *Answer the questions on the basis of the information given below.*

The table given below shows the various costs (in Rs. lakhs) incurred on the production of one ton of five different crops and the Selling Price (in Rs. lakhs) per ton of each crop.

Crop	Maize	Rice	Sugar Cane	Cotton	Mustard Seeds
Raw material cost	10.5	12	7.5	27	19
Insecticides/ Pesticides cost	11.5	8	9.5	42.5	32.5
Fertilizers cost	13.5	10	17.5	20	21
Fuel Consumption Cost	20	15	12.5	10	22.5
Irrigation cost	8	11.5	22	33	16.5
Storage cost	14	8.5	21	20	11
Transportation cost	12.5	10	15	7.5	17.5
Selling Price	120	90	125	175	180

Note: Profit = Selling Price – Total Cost

155. For which crop is the profit percentage per ton the highest?

(a) Cotton (b) Maize (c) Mustard Seeds (d) None of these

156. For how many of the given crops is the Irrigation cost more than 20% of the total cost?

(a) 0 (b) 1 (c) 2 (d) 3

157. If 1 kg of raw material of Cotton costs Rs. 54 and 200 grams of raw material is sown in 10 m^2 of land, then what is the area of land required for producing 1 ton of Cotton?

(a) 2500 m^2 (b) 500 m^2 (c) 2.5 km^2 (d) 5 km^2

2012

Directions for Questions 158 to 160 : Answer the questions on the basis of the information given below.

Each of the six persons namely A, B, C, D, E and F took one ball from a box containing 300 balls of six different colours Blue, Black, Red, White, Green and Yellow. Also, the nu2mber of balls of each colour is the same. Following is the detail of three statements made by each of the persons. Exactly one of the statements made by each person is true and only one of the statements made about B is correct. Also, balls of two particular colours were not taken by any of the perons.

	Statement I	Statement II	Statement III
A	B took a green ball	C did not take a red ball	E took a blue ball
B	A took a green ball	D did not take a yellow ball	C took a black ball
C	F took a white ball	F did not take a white ball	A did not take a blue ball
D	E took a yellow ball	F took a yellow ball	One green ball was taken by me
E	F took a red ball	B took the same coloured ball as A	B took a blue ball
F	A took a white ball	C took a black ball	D did not take a red ball

158. What is the colour of the ball taken by A?

(a) Green (b) Yellow (c) Blue (d) Red

159. What is the colour of the ball taken by C?

(a) Green (b) White (c) Blue (d) Red

160. For how many of the mentioned persons, the exact colour of the balls taken by them can be determined?

(a) 6 (b) 4 (c) 3 (d) 5

LEVEL - 2

1990

Directions for Questions 161 to 166: *Answer the questions on the basis of the information given below.*

The table below shows the estimated cost (in Rs. Lakh) of a project of laying a railway line between two places.

	1988	1989	1990	1991
1. Surveying	41.5	7.5	2.2	0.5
2. Cement	-	95.0	80.0	75.0
3. Steel	-	70.0	45.0	60.0
4. Bricks	-	15.0	12.0	16.0
5. Other building material	-	25.0	18.0	21.0
6. Labour	2.1	25.0	20.0	18.0
7. Administration	7.5	15.0	15.0	14.0
8. Contingencies	1.0	15.0	4.2	5.0
Total	**52.1**	**267.5**	**196.4**	**209.5**

161. The total expenditure is required to be kept within Rs. 700 lakh by cutting the expenditure on administration equally in all the years. What will be the percentage cut for 1989?

(a) 22.6% (b) 32.6%
(c) 42.5% (d) 52.6%

162. If the length of line to be laid each year is in proportion to the estimated cost for material and labour, what fraction of the total length is proposed to be completed by the third year?

(a) 0.9 (b) 0.7
(c) 0.6 (d) 0.3

163. What is the approximate ratio of the total cost of materials for all the years to the total labour cost?

(a) 4 : 1 (b) 8 : 1
(c) 12:1 (d) 16 : 1

164. If the cost of materials rises by 5% each year from 1990 onwards, by how much will the estimated cost rise?

(a) Rs. 11.4 lakh (b) Rs. 16.4 lakh
(c) Rs.21.4 lakh (d) Rs.26.4 lakh

165. It is found at the end of 1990, that the entire amount estimated for the project has been spent. If for 1991, the actual amount spent was equal to that which was estimated, by what percent (approximately) has the actual expenditure exceeded the estimated expenditure?

(a) 39 (b) 29
(c) 19 (d) 9

166. After preparing the estimate, the provision for contingencies is felt inadequate and is therefore doubled. By what percent does the total estimate increase?

(a) 3.47 (b) 2.45
(c) 1.50 (d) 3.62

1993

Directions for Questions 167 to 171: *Answer the questions on the basis of the information given below.*

A professor keeps data on students tabulated by performance and sex of the student . The data is kept on a computer disk, but unfortunately some of it is lost because of a virus. Only the following could be recovered :

	Performance			Total
	Average	Good	Excellent	
Male			10	
Female				32
Total		30		

Panic buttons were pressed but to no avail. An expert committee was formed, which decided that the following facts were self evident:

Half the students were either excellent or good.

40% of the students were females.

One third of the male students were average.

167. How many students were both female and excellent?

(a) 0 (b) 8
(c) 16 (d) 32

168. How many students were both male and good?

(a) 10 (b) 16
(c) 22 (d) 48

169. Among average students, what was the ratio of male to female?

(a) 1 : 2 (b) 2 : 1
(c) 3 : 2 (d) 2 : 3

170. What proportion of female students were good?

(a) 0 (b) 0.25
(c) 0.5 (d) 1.0

171. What proportion of good students were male?

(a) 0 (b) 0.73
(c) 0.4 (d) 1.0

1994

Directions for Questions 172 to 175: *Answer the questions on the basis of the information given below.*

In 1984 – 85 value of exports of manufactured articles exceeds over the value of exports of raw materials by 100%.

In 1985 – 86 the ratio of percentage of exports of raw material to that of exports of manufactured articles is 3 : 4.

Exports of food in 1985 – 86 exceeds the 1984 – 85 figures by Rs. 1006 crore.

Item	1984-85	1985-86
Food		23%
Manufactured Articles		
Raw Material		
Total Value of Exports in Crore of Rs.	22400	25800

172. In 1984 – 85 what percentage of total values of exports accounts for items related to food

(a) 23% (b) 29.2%

(c) 32% (d) 22%

173. During 1984 – 85, how much more raw material than food was exported?

(a) Rs. 2580 crore (b) Rs. 896 crore

(c) Rs. 1986 crore (d) Rs. 1852 crore

174. Value of exports of raw materials during 1984 – 85 was how much percent less than that for 1985 – 86?

(a) 39 (b) 46.18

(c) 7 (d) 31.6

175. The change in value of exports of manufactured articles from 1984 – 85 to 1985 – 86 is

(a) 296 crore (b) 629 crore

(c) 2064 crore (d) 1792 crore

1999

Directions for Questions 176 to 182: *Answer the questions on the basis of the information given below.*

The table below presents data on percentage population covered by drinking water and sanitation facilities in selected Asian countries.

Population covered by drinking water and sanitation facilities

Percentage coverage

	Drinking water			Sanitation facilities		
	Urban	Rural	Total	Urban	Rural	Total
India	85	79	81	70	14	29
Bangladesh	99	96	97	79	44	48
China	97	56	67	74	7	24
Pakistan	82	69	74	77	22	47
Philippines	92	80	86	88	66	77
Indonesia	79	54	62	73	40	51
Sri Lanka	88	52	57	68	62	63
Nepal	88	60	63	58	12	1

(*Source:* World Resources 1998-99, p. 251, UNDP, UNEP and World Bank.)

Country A is said to dominate B or A > B if A has higher percentage in total coverage for both drinking water and sanitation facilities, and, B is said to be dominated by A, or B < A.

A country is said to be on the coverage frontier if no other country dominates it. Similarly, a country is not on the coverage frontier if it is dominated by at least one other country.

176. Which countries are the countries on the coverage frontier?

(a) India and China

(b) Sri Lanka and Indonesia

(c) Philippines and Bangladesh

(d) Nepal and Pakistan

177. Which of the following statements are true?

A. India > Pakistan and India > Indonesia

B. India > China and India > Nepal

C. Sri Lanka > China

D. China > Nepal

(a) A and C (b) B and D

(c) A, B and C (d) B, C and D

178. Using only the data presented under 'sanitation facilities' columns, it can be concluded that rural population in India, as a percentage of its total population is approximately

(a) 76 (b) 70

(c) 73 (d) Cannot be determined

179. Again, using only the data presented under 'sanitation facilities' columns, sequence China, Indonesia and Philippines in ascending order of rural population as a percentage of their respective total population. The correct order is

(a) Philippines, Indonesia, China

(b) Indonesia, China, Philippines

(c) Indonesia, Philippines, China

(d) China, Indonesia, Philippines

180. India is not on the coverage frontier because

A. it is lower than Bangladesh in terms of coverage of drinking water facilities.

B. it is lower than Sri Lanka in terms of coverage of sanitation facilities.

C. it is lower than Pakistan in terms of coverage of sanitation facilities.

D. it is dominated by Indonesia.

(a) A and B (b) A and C

(c) D (d) None of these

Additional directions for questions 181 and 182: *These relate to the above table with the additional provision that the gap between the population coverages of 'sanitation facilities' and 'drinking water facilities' is a measure of disparity in coverage.*

181. The country with the most disparity in coverage of rural sector is

(a) India (b) Bangladesh

(c) Nepal (d) None of these

182. The country with the least disparity in coverage of urban sector is

(a) India (b) Pakistan

(c) Philippines (d) None of these

2003 (R)

Directions for Questions 183 to 185: *Answer the questions on the basis of the following information.*

In a Decathlon, the events are 100 m, 400 m, 100 m hurdles, 1,500 m, High jump, Pole vault, Long jump, Discus, Shot put and Javelin. The performance in the first four of these events is consolidated into Score-1, the next three into Score-2, and the last three into Score-3. Each such consolidation is obtained by giving appropriate positive weights to individual events. The final score is simply the total of these three scores. The athletes with the highest, second highest and the third highest final scores receive the gold, silver, and the bronze medals respectively. The table below gives the scores and performance of 19 top athletes in this event.

Name	Country	Final Score	Score-1	Score-2	Score-3	100m	High jump	Pole-vault
Eduard Hämäläinen	BLS	8802	491	5322	2989	10.74	2.08	4.8
Michael Smith	CAN	8855	174	5274	3407	11.23	1.97	4.9
Tomas Dvorak	CZE	8796	499	5169	3128	10.63	1.91	4.7
Uwe Freimuth	DDR	8799	441	5491	3124	11.06	1.97	4.8
Torsten Voss	DDR	8880	521	5234	2868	10.69	2.1	5.1
Erki Nool	EST	8768	408	5553	2808	10.71	1.99	5.4
Christian Plaziat	FRA	8775	563	5430	2781	10.72	2.1	5
Jürgen Hingsen	FRG	8792	451	5223	3033	10.95	2	4.9
Siegfried Wentz	FRG	8856	470	5250	3137	10.85	2.05	4.8
Guido Kratschmer	FRG	8861	575	5308	3064	10.58	2	4.6
Daley Thompson	GBR		582		3003	10.55	2.11	4.6
Frank Busemann	GER	8905	568	5392	2945	10.6	2.04	4.8
Alexandr Apaichev	SOV	8803	492	5370	3115	10.92	1.95	4.8
Grigory Degtyarov	SOV	8823	339	5196	3114	11.05	2.08	4.9
Robert Zmelik	TCH	8832	494	5455	2883	10.78	2.06	5.1
Dave Johnson	USA	8811	366	5370	3114	10.78	2.1	5
Steve Fritz	USA	8827	427	5163	3119	10.75	2.04	5
Bruce Jenner	USA	8846	483	5280	3200	10.94	2.03	4.8
Dan O'Brien	USA	8897	408	5331	3120	10.36	2.09	4.8

183. The athletes from FRG and USA decided to run a 4 × 100 m relay race for their respective countries with the country having three athletes borrowing the athlete from CZE. Assume that all the athletes ran their stretch of the relay race at the same speed as in Decathlon event. How much more time did the FRG relay team take as compared to the USA team?

(a) 0.18 (b) 0.28

(c) 0.78 (d) 0.00

184. What is the least that Daley Thompson must get in Score-2 that ensures him a bronze medal?

(a) 5309

(b) 5296

(c) 5271

(d) 5270

185. At least how many competitors (excluding Daley Thompson) must Michael Smith have out-jumped in the long jump event?

(a) One (b) Two

(c) Three (d) Four

Directions for Questions 186 to 189: *Answer the questions on the basis of the following information.*

The following is the wholesale price index (WPI) of a select list of items with the base year of 1993-94. In other words, all the item prices are made 100 in that year (1993-94). Prices in all other years for an item are measured with respect to its price in the base year. For instance, the price of cement went up by 1% in 1994-95 as compared to 1993-94. Similarly, the price of power went up by 3% in 1996-97 as compared to 1993-94.

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
All items	100	102.0	102.5	104.0	103.0	105.0	106.0	108.0	107.0	106.0
Cement	100	101.0	100.5	103.0	102.5	103.5	103.1	103.8	103.7	104.0
Limestone	100	102.0	102.5	102.75	102.25	103.0	104.0	105.0	104.5	105.0
Power	100	101.5	102.5	103.0	103.5	104.0	106.0	107.0	107.5	108.0
Steel	100	101.5	101.0	103.5	104.0	104.25	105.0	105.5	106.0	105.5
Timber	100	100.5	101.5	102.0	102.5	102.0	103.0	103.5	104.0	104.5
Wages	100	101.5	103.0	103.5	104.0	104.25	104.0	104.75	104.9	105.3

186. Let us suppose that one bag of cement (50 kg) consumes 100 kg of limestone and 10 units of power. The only other cost item in producing cement is in the form of wages. During 1993-94, limestone, power and wages contributed, respectively, 20%, 25% and 15% to the cement price per bag. The average operating profit (per cent of price per cement bag) earned by a cement manufacturer during 2002-03 is closest to

(a) 40% (b) 39.5%

(c) 38.5% (d) 37.5%

187. Steel manufacturing requires the use of iron ore, power and manpower. The cost of iron ore has followed the All Items index. During 1993-94 power accounted for 30% of the selling price of steel, iron ore for 25%, and wages for 10% of the selling price of steel. Assuming the cost and price data for cement as given in the previous question, the operating profit (per cent of selling price) of an average steel manufacturer in 2002-03

(a) is more than that of a cement manufacturer.

(b) is less than that of a cement manufacturer.

(c) is the same as that of a cement manufacturer.

(d) Cannot be determined.

188. Which item experienced continuous price rise during the ten-year period?

(a) Power

(b) Cement

(c) Wages

(d) Limestone

189. Which item(s) experienced only one decline in price during the ten-year period?

(a) Steel and limestone

(b) Steel and timber

(c) Timber

(d) Timber and wages

Directions for Questions 190 to 193: *Answer the questions on the basis of the following table.*

Below is a table that lists countries region-wise. Each region-wise list is sorted, first by birth rate and then alphabetically by name of country. We now wish to merge the region-wise list into one consolidated list and provide overall rankings to each country based first on birth rate and then on death rate. Thus, if some countries have the same birth rate, then the country with a lower death rate will be ranked higher. Further, countries having identical birth and death rates will get the same rank. For example, if two countries are tied for the third position, then both will be given rank 3, while the next country (in the ordered list) will be ranked 5.

Rank	Country	Birth Rate	Death Rate	Region
1	South Africa	36	12	Africa
2	Egypt	39	13	Africa
3	Cameroon	42	22	Africa
4	Mozambique	45	18	Africa
5	Zaire	45	18	Africa
6	Ghana	46	14	Africa
7	Angola	47	23	Africa
8	Madagascar	47	22	Africa
9	Morocco	47	16	Africa
10	Tanzania	47	17	Africa
11	Ethiopia	48	23	Africa
12	Ivory coast	48	23	Africa
13	Rhodesia	48	14	Africa
14	Uganda	48	17	Africa
15	Nigeria	49	22	Africa
16	Saudi Arabia	49	19	Africa
17	Sudan	49	17	Africa
18	Algeria	50	16	Africa
19	Kenya	50	14	Africa
20	Upper Volta	50	28	Africa

Rank	Country	Birth Rate	Death Rate	Region
1	Germany (FRG)	10	12	Europe
2	Austria	12	13	Europe
3	Belgium	12	12	Europe
4	Germany (DRG)	12	14	Europe
5	Sweden	12	11	Europe
6	Switzerland	12	9	Europe
7	U.K.	12	12	Europe
8	Netherlands	13	8	Europe
9	France	14	11	Europe
10	Italy	14	10	Europe
11	Greece	16	9	Europe
12	Bulgaria	17	10	Europe
13	Hungary	18	12	Europe
14	Spain	18	8	Europe
15	USSR	18	9	Europe
16	Yugoslavia	18	8	Europe
17	Czech. Rep.	19	11	Europe
18	Portugal	19	10	Europe
19	Romania	19	10	Europe
20	Poland	20	9	Europe

Rank	Country	Birth Rate	Death Rate	Region
1	Japan	16	6	Asia
2	Korea (ROK)	26	6	Asia
3	Sri Lanka	26	9	Asia
4	Taiwan	26	5	Asia
5	Malaysia	30	6	Asia
6	China	31	11	Asia
7	Thailand	34	10	Asia
8	Turkey	34	12	Asia
9	India	36	15	Asia
10	Burma	38	15	Asia
11	Iran	42	12	Asia
12	Vietnam	42	17	Asia
13	Korea (DPRK)	43	12	Asia
14	Pakistan	44	14	Asia
15	Nepal	46	20	Asia
16	Bangladesh	47	19	Asia
17	Syria	47	14	Asia
18	Iraq	48	14	Asia
19	Afghanistan	52	30	Asia

Rank	Country	Birth Rate	Death Rate	Region
1	U.S.A.	15	9	N. America
2	Canada	16	7	N. America
3	Cuba	20	6	N. America
4	Mexico	40	7	N. America
1	Australia	16	8	Pacific
2	Philippines	34	10	Pacific
3	Indonesia	38	16	Pacific
1	Argentina	22	10	S. America
2	Chile	22	7	S. America
3	Colombia	34	10	S. America
4	Brazil	36	10	S. America
5	Venezuela	36	6	S. America
6	Guatemala	40	14	S. America
7	Peru	40	13	S. America
8	Ecuador	42	11	S. America

190. In the consolidated list, what would be the overall rank of the Philippines?

(a) 32 (b) 33

(c) 34 (d) 35

191. In the consolidated list, how many countries would rank below Spain and above Taiwan?

(a) 9 (b) 8

(c) 7 (d) 6

192. In the consolidated list, which country ranks 37th?

(a) South Africa (b) Brazil

(c) Turkey (d) Venezuela

193. In the consolidated list, how many countries in Asia will rank lower than every country in South America, but higher than at least one country in Africa?

(a) 8

(b) 7

(c) 6

(d) 5

2003 (L)

Directions for Questions 194 to 196: Answer the questions on the basis of the information given below.

The table below provides certain demographic details of 30 respondents who were part of a survey. The demographic characteristics are: gender, number of children, and age of respondents. The first number in each cell is the number of respondents in that group. The minimum and maximum age of respondents in each group is given in brackets. For example, there are five female respondents with no children and among these five, the youngest is 34 years old, while the oldest is 49.

No. of children	Male	Female	Total
0	1 (38, 38)	5 (34, 49)	6
1	1 (32, 32)	8 (35, 57)	9
2	8 (21, 65)	3 (37, 63)	11
3	2 (32, 33)	2 (27, 40)	4
Total	12	18	30

194. The percentage of respondents aged less than 40 years is at least

(a) 10% (b) 16.67%

(c) 20.0% (d) 30%

195. Given the information above, the percentage of respondents older than 35 can be at most

(a) 30% (b) 73.33%

(c) 76.67% (d) 90%

196. The percentage of respondents that fall into the 35 to 40 years age group (both inclusive) is at least

(a) 6.67% (b) 10%

(c) 13.33% (d) 26.67%

Directions for Questions 197 to 199: *Answer the questions on the basis of the information given below.*

Spam that enters our electronic mailboxes can be classified under several spam heads. The following table shows the distribution of such spam worldwide over time. The total number of spam emails received during December 2002 was larger than the number received in June 2003. The total number of spam emails received during September 2002 was larger than the number received in March 2003. The figures in the table represent the percentage of all spam emails received during that period, falling into those respective categories.

Category	Sep-02	Dec-02	Mar-03	Jun-03
Adult	38	33	19	17
Financial	25	30	37	45
Health	11	19	5	18
Internet	5	3	10	6
Products	3	7	10	11
Scams	5	6	11	2
Others	13	2	8	1

197. In which category was the percentage of spam emails increasing but at a decreasing rate?

(a) Financial (b) Scams

(c) Products (d) None of the above

198. In the health category, the number of spam emails received in December 2002 as compared to June 2003.

(a) was larger (b) was smaller

(c) was equal (d) cannot be determined

199. In the financial category, the number of spam emails received in September 2002 as compared to March 2003.

(a) was larger (b) was smaller

(c) was equal (d) cannot be determined

Directions for Questions 200 to 202: Answer the questions on the basis of the information given below.

Table A below provides data about ages of children in a school. For the age given in the first column, the second column gives the number of children not exceeding the age. For example, first entry indicates that there are 9 children aged 4 years or less. Tables B and C provide data on the heights and weights respectively of the same group of children in a similar format. Assuming that an older child is always taller and weighs more than a younger child, answer the following questions.

Table A	
Age (years)	Number
4	9
5	12
6	22
7	35
8	42
9	48
10	60
11	69
12	77
13	86
14	100

Table B	
Height (cm.)	Number
115	6
120	11
125	24
130	36
135	45
140	53
145	62
150	75
155	81
160	93
165	100

Table C	
Weight (kg.)	Number
30	8
32	13
34	17
36	28
38	33
40	46
42	54
44	67
46	79
48	91
50	100

200. What is the number of children of age 9 years of less whose height does not exceed 135 cm?

(a) 48 (b) 45 (c) 3 (d) Cannot be determined

201. How many children of age more than 10 years are taller than 150 cm and do not weigh more than 48 kg?

(a) 16 (b) 40 (c) 9 (d) Cannot be determined

202. Among the children older than 6 years but not exceeding 12 years, how many weigh more than 38 kg.?

(a) 34 (b) 52 (c) 44 (d) Cannot be determined

2004

Directions for Questions 203 to 206: *Answer the questions on the basis of the information given below.*

The Dean's office recently scanned student results into the central computer system. When their character reading software cannot read something, it leaves the space blank. The scanner output reads as follows:

Name	Finance	Marketing	Statistics	Strategy	Operations	GPA
Aparna		B	F			1.4
Bikas	D	D	F	F		
Chandra		D	A	F	F	2.4
Deepak	A	B		D	D	3.2
Fazal	D	F	B		D	2.4
Gowri	C	C	A		B	3.8
Hari		B	A		D	2.8
Ismet			B		A	
Jagdeep	A	A	B		C	3.8
Kunal	F		A	F	F	1.8
Leena	B	A		B	F	3.2
Manab			A	B	B	
Nisha	A	D	B	A	F	3.6
Osman	C		B	B	A	4.6
Preeti	F	D		D		3.2
Rahul	A	C	A		F	4.2
Sameer		C	F	B		
Tara	B					2.4
Utkarsh			F	C	A	3
Vipul	A		C	C	F	2.4

In the grading system, A, B, C, D, and F grades fetch 6, 4, 3, 2, and 0 grade points respectively. The Grade Point Average (GPA) is the arithmetic mean of the grade points obtained in the five subjects. For example Nisha's GPA is (6 + 2 + 4 + 6 + 0) / 5 = 3.6. Some additional facts are also known about the students' grades. These are

(a) Vipul obtained the same grade in Marketing as Aparna obtained in Finance and Strategy.

(b) Fazal obtained the same grade in Strategy as Utkarsh did in Marketing.

(c) Tara received the same grade in exactly three courses.

203. What grade did Preeti obtain in Statistics?

(a) A (b) B

(c) C (d) D

204. In Operations, Tara could have received the same grade as

(a) Ismet

(b) Hari

(c) Jagdeep

(d) Manab

205. In Strategy, Gowri's grade point was higher than that obtained by

(a) Fazal (b) Hari

(c) Nisha (d) Rahul

206. What grade did Utkarsh obtain in Finance?

(a) B (b) C

(c) D (d) F

Directions for Questions 207 to 210: *Answer the questions on the basis of the information given below.*

Prof. Singh has been tracking the number of visitors to his homepage. His service provider has provided him with the following data on the country of origin of the visitors and the university they belong to:

Number of visitors

	DAY		
COUNTRY	**1**	**2**	**3**
Canada	2	0	0
Netherlands	1	1	0
India	1	2	0
UK	2	0	2
USA	1	0	1

Number of visitors

	DAY		
UNIVERSITY	**1**	**2**	**3**
University 1	1	0	0
University 2	2	0	0
University 3	0	1	0
University 4	0	0	2
University 5	1	0	0
University 6	1	0	1
University 7	2	0	0
University 8	0	2	0

207. To which country does University 5 belong?

(a) India or Netherlands but not USA

(b) India or USA but not Netherlands

(c) Netherlands or USA but not India

(d) India or USA but not UK

208. University 1 can belong to

(a) UK (b) Canada

(c) Netherlands (d) USA

209. Which among the listed countries can possibly host three of the eight listed universities?

(a) None (b) Only UK

(c) Only India (d) Both India and UK

210. Visitors from how many universities from UK visited Prof. Singh's homepage in the three days?

(a) 1 (b) 2

(c) 3 (d) 4

Directions for Questions 211 to 214: *Answer the questions on the basis of the information given below.*

A study was conduced to ascertain the relative importance that employees in five different countries assigned to five different traits in their Chief Executive Officers. The traits were compassion (C), decisiveness (D), negotiation skills (N), public visibility (P), and vision (V). The level of dissimilarity between two countries is the maximum difference in the ranks allotted by the two countries to any of the five traits. The following table indicates the rank order of the five traits for each country.

	Country				
Rank	**India**	**China**	**Japan**	**Malaysia**	**Thailand**
1	C	N	D	V	V
2	P	C	N	D	C
3	N	P	C	P	N
4	V	D	V	C	P
5	D	V	P	N	D

211. Which of the following pairs of countries are most dissimilar?

(a) China and Japan

(b) India and China

(c) Malaysia and Japan

(d) Thailand and Japan

212. Which of the following countries is least dissimilar to India?

(a) China (b) Japan

(c) Malaysia (d) Thailand

213. Which amongst the following countries is most dissimilar to India?

(a) China

(b) Japan

(c) Malaysia

(d) Thailand

214. Three of the following four pairs of countries have identical levels of dissimilarity. Which pair is the odd one out?

(a) Malaysia and China

(b) China and Thailand

(c) Thailand and Japan

(d) Japan and Malaysia

2005

Directions for Questions 215 to 218: *Answer the questions on the basis of the information given below:*

In the table below is the listing of players, seeded from highest (#1) to lowest (#32), who are due to play in an Association of Tennis Players (ATP) tournament for women. This tournament has four knockout rounds before the final, i.e., first round, second round, quarterfinals, and semi-finals. In the first round, the highest seeded player plays the lowest seeded player (seed #32) which is designated match No. 1 of first round; the 2nd seeded player plays the 31st seeded player which is designated match No. 2 of the first round, and so on. Thus, for instance, match No. 16 of first round is to be played between 16th seeded player and the 17th seeded player. In the second round, the winner of match No. 1 of first round plays the winner of match No. 16 of first round and is designated match No. 1 of second round. Similarly, the winner of match No. 2 of first round plays the winner of match No. 15 of first round, and is designated match No. 2 of second round. Thus, for instance, match No. 8 of the second round is to be played between the winner of match No. 8 of first round and the winner of match No. 9 of first round. The same pattern is followed for later rounds as well.

Seed#	Name of Player	Seed#	Name of Player	Seed#	Name of Player
1	Maria Sharapova	12	Mary Pierce	23	Silvia Farina Elia
2	Lindsay Davenport	13	Anastasia Myskina	24	Tatiana Golovin
3	Amelie Mauresmo	14	Alicia Molik	25	Shinobu Asagoe
4	Kim Clijsters	15	Nathalie Dechy	26	Francesca Schiavone
5	Svetlana Kuznetsova	16	Elena Bovina	27	Nicole Vaidisova
6	Elena Dementieva	17	Jelena Jankovic	28	Gisela Dulko
7	Justine Henin	18	Ana Ivanovic	29	Flavia Pennetta
8	Serena Williams	19	Vera Zvonareva	30	Anna Chakvetadze
9	Nadia Petrova	20	Elena Likhovtseva	31	Al Sugiyama
10	Venus Williams	21	Daniela Hantuchova	32	Anna-lena Groenefeld
11	Patty Schnyder	22	Dinara Safina		

215. If there are no upsets (a lower seeded player beating a higher seeded player) in the first round, and only match Nos. 6, 7, and 8 of the second round result in upsets, then who would meet Lindsay Davenport in quarter finals, in case Davenport reaches quarter finals?

(a) Justine Henin (b) Nadia Petrova

(c) Patty Schnyder (d) Venus Williams

216. If Elena Dementieva and Serena Williams lose in the second round, while Justine Henin and Nadia Petrova make it to the semi-finals, then who would play Maria Sharapova in the quarterfinals, in the event Sharapova reaches quarterfinals?

(a) Dinara Safina (b) Justine Henin

(c) Nadia Petrova (d) Patty Schnyder

217. If, in the first round, all even numbered matches (and none of the odd numbered ones) result in upsets, and there are no upsets in the second round, then who could be the lowest seeded player facing Maria Sharapova in semi-finals?

(a) Anastasia Myskina (b) Flavia Pennetta

(c) Nadia Petrova (d) Svetlana Kuznetsova

218. If the top eight seeds make it to the quarterfinals, then who, amongst the players listed below, would definitely not play against Maria Sharapova in the final, in case Sharapova reaches the final?

(a) Amelie Mauresmo (b) Elena Dementieva

(c) Kim Clijsters (d) Lindsay Davenport

Directions for Questions 219 to 222: *Answer the questions on the basis of the information given below:*

The table below presents the revenue (in million rupees) of four firms in three states. These firms, Honest Ltd., Aggressive Ltd., Truthful Ltd. and Profitable Ltd. are disguised in the table as A, B, C and D, in no particular order.

States	Firm A	Firm B	Firm C	Firm D
UP	49	82	80	55
Bihar	69	72	70	65
MP	72	63	72	65

Further, it is known that:

- In the state of MP, Truthful Ltd. has the highest market share.
- Aggressive Ltd.'s aggregate revenue differs from Honest Ltd.'s by Rs. 5 million.

219. What can be said regarding the following two statements?

Statement 1: Profitable Ltd. has the lowest share in MP market.

Statement 2: Honest Ltd.'s total revenue is more than Profitable Ltd.

(a) If Statement 1 is true then Statement 2 is necessarily true.

(b) If Statement 1 is true then Statement 2 is necessarily false.

(c) Both Statement 1 and Statement 2 are true.

(d) Neither Statement 1 nor Statement 2 is true.

220. What can be said regarding the following two statements?

Statement 1: Aggressive Ltd.'s lowest revenues are from MP.

Statement 2: Honest Ltd.'s lowest revenues are from Bihar.

(a) If Statement 2 is true then Statement 1 is necessarily false.

(b) If Statement 1 is false then Statement 2 is necessarily true.

(c) If Statement 1 is true then Statement 2 is necessarily true

(d) None of the above.

221. What can be said regarding the following two statements?

Statement 1: Honest Ltd. has the highest share in the UP market.

Statement 2: Aggressive Ltd. has the highest share in the Bihar market.

(a) Both statements could be true.

(b) At least one of the statements must be true.

(c) At most one of the statements is true.

(d) None of the above.

222. If Profitable Ltd.'s lowest revenue is from UP, then which of the following is true?

(a) Truthful Ltd.'s lowest revenues are from MP.

(b) Truthful Ltd.'s lowest revenues are from Bihar.

(c) Truthful Ltd.'s lowest revenues are from UP.

(d) No definite conclusion is possible.

2006

Directions for Questions 223 to 227: *Answer questions on the basis of the information given below:*

In a Class X Board examination, ten papers are distributed over five Groups - PCB, Mathematics, Social Science, Vernacular and English. Each of the ten papers is evaluated out of 100. The final score of a student is calculated in the following manner. First, the Group Scores are obtained by averaging marks in the papers within the Group. The final score is the simple average of the Group Scores. The data for the top ten students are presented below. (Dipan's score in English Paper II has been intentionally removed in the table.)

Name of the student	PCB Group			Mathematics Group	Social Science Group		Vernacular Group		English Group		Final Score
	Phy.	Chem.	Bio.		Hist.	Geo.	Paper I	Paper II	Paper I	Paper II	
Ayesha (G)	98	96	97	98	95	93	94	96	96	98	96.2
Ram (B)	97	99	95	97	95	96	94	94	96	98	96.1
Dipan (B)	98	98	98	95	96	95	96	94	96	??	96.0
Sagnik (B)	97	98	99	96	96	98	94	97	92	94	95.9
Sanjiv (B)	95	96	97	98	97	96	92	93	95	96	95.7
Shreya (G)	96	89	85	100	97	98	94	95	96	95	95.5
Joseph (B)	90	94	98	100	94	97	90	92	94	95	95
Agni (B)	96	99	96	99	95	96	82	93	92	93	94.3
Pritam (B)	98	98	95	98	83	95	90	93	94	94	93.9
Tirna (G)	96	98	97	99	85	94	92	91	87	96	93.7

Note: B or G against the name of a student respectively indicates whether the student is a boy or a girl.

223. How much did Dipan get in English Paper II?

(a) 94 (b) 96.5

(c) 97 (d) 98

(e) 99

224. Among the top ten students, how many boys scored at least 95 in at least one paper from each of the groups?

(a) 1 (b) 2

(c) 3 (d) 4

(e) 5

225. Had Joseph, Agni, Pritam and Tirna each obtained Group Score of 100 in the Social Science Group, then their standing in decreasing order of final score would be:

(a) Pritam, Joseph, Tirna, Agni

(b) Joseph, Tirna, Agni, Pritam

(c) Pritam, Agni, Tirna, Joseph

(d) Joseph, Tirna, Pritam, Agni

(e) Pritam, Tirna, Agni, Joseph

226. Students who obtained Group Scores of at least 95 in every group are eligible to apply for a prize. Among those who are eligible, the student obtaining the highest Group Score in Social Science Group is awarded this prize. The prize was awarded to:

(a) Shreya (b) Ram

(c) Ayesha (d) Dipan

(e) No one from the top ten

227. Each of the ten students was allowed to improve his/her score in exactly one paper of choice with the objective of maximizing his/her final score. Everyone scored 100 in the paper in which he or she chose to improve. After that, the topper among the ten students was:

(a) Ram (b) Agni

(c) Pritam (d) Ayesha

(e) Dipan

2007

Directions for Questions 228 to 231: Answer the following questions based on the information given below:

A health-drink company's R&D department is trying to make various diet formulations, which can be used for certain specific purposes. It is considering a choice of 5 alternative ingredients (O, P, Q, R, and S), which can be used in different proportions in the formulations. The table below gives the composition of these ingredients. The cost per unit of each of these ingredients is O: 150, P: 50. Q: 200, R: 500, S: 100.

Ingredient	Composition			
	Carbohydrate%	Protein%	Fat%	Minerals%
O	50	30	10	10
P	80	20	0	0
Q	10	30	50	10
R	5	50	40	5
S	45	50	0	5

228. For a recuperating patient, the doctor recommended a diet containing 10% minerals and at least 30% protein. In how many different ways can we prepare this diet by mixing at least two ingredients?

(a) One (b) Two
(c) Three (d) Four
(e) None

229. Which among the following is the formulation having the lowest cost per unit for a diet having 10% fat and at least 30% protein? (The diet has to be formed by mixing two ingredients).

(a) P and Q (b) P and S
(c) P and R (d) Q and S
(e) R and S

230. In what proportion P, Q and S should be mixed to make a diet having at least 60% carbohydrate at the lowest cost per unit?

(a) 2 : 1 : 3
(b) 4 : 1 : 2
(c) 2 : 1 : 4
(d) 3 : 1 : 2
(e) 4 : 1 : 1

231. The company is planning to launch a balanced diet required for growth needs of adolescent children. This diet must contain at least 30% each of carbohydrate and protein, no more than 25% fat and at least 5% minerals. Which one of the following combinations of equally mixed ingredients is feasible?

(a) O and P
(b) R and S
(c) P and S
(d) Q and R
(e) O and S

Directions for Questions 232 to 235: *Answer the following questions based on the information given below:*

The following table shows the break-up of actual costs incurred by a company in last five years (year 2002 to year 2006) to produce a particular product:

	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006
Volume of production and sale (units)	1000	900	1100	1200	1200
Costs (Rs.)					
Material	50,000	45,100	55,200	59,900	60,000
Labour	20,000	18,000	22,100	24,150	24,000
Consumables	2,000	2,200	1,800	1,600	1,400
Rent of building	1,000	1,000	1,100	1,100	1,200
Rates and taxes	400	400	400	400	400
Repair and maintenance expenses	800	820	780	790	800
Operating cost of machines	30,000	27,000	33,500	36,020	36,000
Selling and marketing expenses	5,750	5,800	5,800	5,750	5,800

The production capacity of the company is 2000 units. The selling price for the year 2006 was Rs. 125 per unit. Some costs change almost in direct proportion to the change in volume of production, while others do not follow any obvious pattern of change with respect to the volume of production and hence are considered fixed. Using the information provided for the year 2006 as the basis for projecting the figures for the year 2007, answer the following questions:

232. What is the approximate cost per unit in rupees, if the company produces and sells 1400 units in the year 2007?

(a) 104 (b) 107 (c) 110 (d) 115 (e) 116

233. What is the minimum number of units that the company needs to produce and sell to avoid any loss?

(a) 313 (b) 350
(c) 384 (d) 747
(e) 928

234. If the company reduces the price by 5%, it can produce and sell as many units as it desires. How many units the company should produce to maximize its profit?

(a) 1400 (b) 1600
(c) 1800 (d) 1900
(e) 2000

235. Given that the company cannot sell more than 1700 units, and it will have to reduce the price by Rs.5 for all units, if it wants to sell more than 1400 units, what is the maximum profit, in rupees, that the company can earn?

(a) 25,400 (b) 24,400
(c) 31,400 (d) 32,900
(e) 32,000

Directions for Questions 236 to 239: *Answer the following questions based on the information given below:*

The proportion of male students and the proportion of vegetarian students in a school are given below.

The school has a total of 800 students, 80% of whom are in the Secondary Section and rest are equally divided between Class 11 and 12.

	Male (M)	Vegetarian (V)
Class 12	0.6	
Class 11	0.55	0.5
Secondary Section		0.55
Total	0.475	0.53

236. What is the percentage of male students in the secondary section?

(a) 40 (b) 45
(c) 50 (d) 55
(e) 60

237. In Class 12, twenty five per cent of the vegetarians are male. What is the difference between the number of female vegetarians and male non-vegetarians?

(a) less than 8 (b) 10
(c) 12 (d) 14
(e) 16

238. What is the percentage of vegetarian students in Class 12?

(a) 40 (b) 45
(c) 50 (d) 55
(e) 60

239. In the Secondary Section, 50% of the students are vegetarian males. Which of the following statements is correct?

(a) Except vegetarian males, all other groups have same number of students.

(b) Except non-vegetarian males, all other groups have same number of students.

(c) Except vegetarian females, all other groups have same number of students.

(d) Except non-vegetarian females, all other groups have same number of students.

(e) All of the above groups have the same number of students.

Directions for Questions 240 to 243: *Answer the following questions based on the information given below:*

The Table below shows the comparative costs, in US Dollars, of major surgeries in USA and a select few Asian countries.

Procedure	Comparative Costs in USA and some Asian countries (in US Dollar)				
	USA	India	Thailand	Singapore	Malaysia
Heart Bypasss	130000	10000	11000	18500	9000
Heart Valve Replacement	160000	9000	10000	12500	9000
Angioplasty	57000	11000	13000	13000	11000
Hip Replacement	43000	9000	12000	12000	10000
Hysterectomy	20000	3000	4500	6000	3000
Knee Replacement	40000	8500	10000	13000	8000
Spinal Fusion	62000	5500	7000	9000	6000

The equivalent of one US Dollar in the local currencies is given below:

	1 US Dollar equivalent	
India	40.928	Rupees
Malaysia	3.51	Ringits
Thailand	32.89	Bahts
Singapore	1.53	S Dollars

A consulting firm found that the quality of the health services were not the same in all the countries above. A poor quality of a surgery may have significant repercussions in future, resulting in more cost in correcting mistakes. The cost of poor quality of surgery is given in the table below:

Procedure	Comparative cost of poor quality in USA and some Asian countries (in US Dollars '000)				
	USA	India	Thailand	Singapore	Malaysia
Heart Bypasss	0	3	3	2	4
Heart Valve Replacement	0	5	4	5	5
Angioplasty	0	5	5	4	6
Hip Replacement	0	7	5	5	8
Hysterectomy	0	5	6	5	4
Knee Replacement	0	9	6	4	4
Spinal Fusion	0	5	6	5	6

240. A US citizen is hurt in an accident and requires an angioplasty, hip replacement and a knee replacement. Cost of foreign travel and stay is not a consideration since the government will take care of it. Which country will result in the cheapest package, taking cost of poor quality into account?

(a) India (b) Thailand
(c) Malaysia (d) Singapore
(e) USA

241. Taking the cost of poor quality into account, which country/countries will be the most expensive for knee replacement?

(a) India (b) Thailand
(c) Malaysia (d) Singapore
(e) India and Singapore

242. Approximately, what difference in amount in Bahts will it make to a Thai citizen if she were to get a hysterectomy done in India instead of in her native country, taking into account the cost of poor quality? (It costs 7500 Bahts for one-way travel between Thailand and India).

(a) 23500 (b) 40500
(c) 57500 (d) 67500
(e) 75000

243. The rupee value increases to Rs.35 for a US Dollar, and all other things including quality, remain the same. What is the approximate difference in cost, in US Dollars, between Singapore and India for a Spinal Fusion, taking this change into account?

(a) 700 (b) 2500
(c) 4500 (d) 8000
(e) No difference

2008

Directions for Questions 244 to 246: *Answer the following questions based on the information given below:*

There are 100 employees in an organization across five departments. The following table gives the department-wise distribution of average age, average basic pay and allowances. The gross pay of an employee is the sum of his/her basic pay and allowances.

Department	Number of Employees	Average Age (Years)	Average Basic Pay (Rs.)	Allowances (% of Basic Pay)
HR	5	45	5000	70
Marketing	30	35	6000	80
Finance	20	30	6500	60
Business Development	35	42	7500	75
Maintenance	10	35	5500	50

There are limited numbers of employees considered for transfer/promotion across departments. Whenever a person is transferred/promoted from a department of lower average age to a department of higher average age, he/she will get an additional allowance of 10% of basic pay over and above his/her current allowance. There will not be any change in pay structure if a person is transferred/promoted from a department with higher average age to a department with lower average age.

Questions below are independent of each other.

244. What is the approximate percentage change in the average gross of the HR department due to transfer of a 40-year old person with basic pay of Rs. 8000 from the Marketing department?

(a) 9%
(b) 11%
(c) 13%
(d) 15%
(e) 17%

245. There was a mutual transfer of an employee between Marketing and Finance departments and transfer of one employee from Marketing to HR. As a result, the average age of Finance department increased by one year and that of Marketing department remained the same. What is the new average age of HR department?

(a) 30 (b) 35
(c) 40 (d) 45
(e) cannot be determined

246. If two employees (each with a basic pay of Rs. 6000) are transferred from Maintenance department to HR department and one person (with a basic pay of Rs. 8000) was transferred from Marketing department to HR department, what will be the percentage change in average basic pay of HR department?

(a) 10.5% (b) 12.5%
(c) 15% (d) 30%
(e) 40%

MEMORY BASED QUESTIONS

2009

Directions for Questions 247 to 249: *Answer the following questions on the basis of the information given below.* The table given below shows the production figures (in thousand tonnes) of the various types of crops produced in the country called Khetistan for three years. It also shows the percentage contribution of Charyana, one of the states of Khetistan, to the total production of Khetistan for each year.

	1991		1992		1993	
	Khetistan (in '000 tonnes)	Charyana (in %)	Khetistan (in '000 tonnes)	Charyana (in %)	Khetistan (in '000 tonnes)	Charyana (in %)
Wheat	1500	20	1800	25	2000	25
Rice	2000	15	2200	20	2400	20
Bajra	500	25	600	15	800	15
Maize	400	20	300	15	500	20
Others	1200	10	1400	10	1000	10
Total	5600		6300		6700	

247. In which year was the percentage contribution of Charyana to the total production of Khetistan (all the crops) maximum during the period 1991-1993?

(a) 1991 (b) 1992
(c) 1993 (d) Cannot be determined

248. Which crop showed a decline in production for two consecutive years in Charyana during the period 1991-1993?

(a) Bajra (b) Maize
(c) Rice (d) None of these

249. Which crop showed a decline in production for at least one year in Charyana despite showing an increase in production for two consecutive years in Khetistan during the period 1991-1993?

(a) Wheat (b) Rice
(c) Bajra (d) Maize

Directions for questions 250 to 253: *Answer the following questions on the basis of the information given below.*

The performance of six students of a class in five subjects is evaluated on a 9-point grading system. Each student is awarded a grade and grade points in each of the five subjects based on the marks obtained by him in that subject (See Table - 1). Table - 2 shows the marks obtained by each student in the five subjects. A student's GPA (Grade Point Average) is the average of the grade points awarded to him in the five subjects.

Marks Range	Grade	Grade Points
91-100	A1	10
81-90	A2	9
71-80	B1	8
61-70	B2	7
51-60	C1	6
41-50	C2	5
31-40	D	4
21-30	E	3
0-20	F	2

Table - 1

		Subject-wise Marks Scored				
		English	Hindi	Math	Science	S.Sc.
Student	Abhishek	56	67	92	97	51
	Saral	88	79	87	Z	88
	Himanshu	X	81	82	89	81
	Puneet	83	90	91	78	79
	Vijay	74	65	Y	67	77
	Sanjay	73	88	93	60	86

Table - 2

Additional Information:

- The sum of the GPAs of Saral and Puneet is equal to the sum of the GPAs of Himanshu and Sanjay.
- The GPAs of Abhishek and Vijay are equal.
- Saral, Himanshu, Puneet and Sanjay get distinct GPAs.
- Though the total marks (the sum of the marks obtained in the five subjects) of Himanshu are not the highest, his GPA is the highest among the six students.
- The sum of the marks obtained by the six students in Science is more than the sum of the marks obtained by the six students in exactly three of the other four subjects.

250. Which grade is awarded to Saral in Science?

(a) A1 (b) A2

(c) B1 (d) B2

251. Who gets the second highest GPA among the six students?

(a) Saral (b) Puneet

(c) Vijay (d) Sanjay

252. What is the sum of the marks obtained by Saral in the five subjects?

(a) 422 (b) 432

(c) 426 (d) Cannot be determined

253. How many values are possible for X?

(a) 1 (b) 10

(c) 8 (d) None of these

2010

Directions for questions 254 and 255: *Answer the questions on the basis of the information given below.*

The performance appraisal of the employees of Hondai Motors Pvt Ltd. was done three times in the year 2010. The first appraisal was done in January, the second in July and the third in November. Only the employees who were appraised in January were eligible for appraisal in July and only those who were appraised in July were eligible for appraisal in November.

During an appraisal, an employee was appraised on exactly one of the three performance areas – Individual Performance, Team Performance and Moral Conduct. An employee already appraised on a particular performance area was not appraised on the same performance area in subsequent appraisal(s) during the year.

The table given below shows the number of employees appraised in each of the three appraisal months in 2010 for different performance areas.

Performance Area	Appraisal Month		
	January	July	November
Individual Performance	70	30	9
Team Performance	67	22	13
Moral Conduct	97	29	11

254. How many employees of Hondai Motors Pvt Ltd. were appraised on exactly one performance area in 2010?

(a) 235 (b) 121

(c) 154 (d) None of these

255. Among the employees of Hondai Motors Pvt Ltd. who were appraised in 2010, how many were not appraised on Individual Performance?

(a) 125 (b) 134

(c) 113 (d) 165

2011

Directions for questions 256 and 257 : *Answer the questions on the basis of the information given below.*

Travelabad is famous for its vast railway network. It has three types of trains – Super Fast, Express and Passenger – and each type of train has two classes of travel – Sleeper and Air Conditioned. The train fare in Travelabad has two components – fixed fare and variable fare. The fixed fare is based on the class of travel – Rs. 60 for Sleeper and Rs. 100 for Air Conditioned. The variable fare depends on the distance of the journey, the type of train and the class of travel. The table given below shows the variable fare (in Rs.) for different distance ranges from the source station to the destination station.

Distance Range	≤150 km		151 – 500 km		501 – 1000 km		1001 – 1800 km		≥1801 km	
Class	SL	AC	SL	AC	SL	AC	SL	AC	SL	AC
Super Fast	80	200	155	500	250	650	340	950	480	1250
Express	60	160	110	300	175	450	240	650	330	900
Passenger	45	120	80	225	125	325	160	425	225	550

AC = Air Conditioned Class

SL = Sleeper Class

256. Ghumakkad Das travels only in the Sleeper class of Super Fast trains. He travelled from Delhi to Bhopal and then took another train from Bhopal to Mumbai. Next day he returned to Delhi directly from Mumbai. The total train fare while going to Mumbai from Delhi via Bhopal exceeded the train fare while coming back to Delhi from Mumbai by Rs.125. If Bhopal lies on the only rail route connecting Delhi and Mumbai, in which range does Delhi-Mumbai rail distance fall?

(a) 151 – 500 km (b) 501 – 1000 km

(c) 1001 – 1800 km (d) ≥ 1801 km

257. One day Yatri Kumar travelled in the Sleeper Class of a train. Next day he travelled in the Air Conditioned Class of the same type of train for a different journey. If the train fare on the two days was exactly the same, in which type of train did he travel?

(a) Super Fast (b) Express

(c) Passenger (d) Cannot be determined

2012

Directions for Questions 258 to 260 : Answer the questions on the basis of the information given below.

The following table provides partial details about the comparison of the increase in the number of applicants among four streams in education viz. Engineering, Medical Science, Commerce and Arts in the year 2008 as compared to the year 2007. The increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and the average number of applicants in the four streams in 2008 is 400000. Assume that these are the only four streams in the education system. In the given table, the number 20000 under the title 'Commerce' means that the increase in the number of applicants in the Commerce stream in 2008 as compared to the year 2007 is 20000 less than the corresponding increase in the Engineering stream. All the other data in the table should be interpreted similarly.

	Engineering	Medical Sciences	Commerce
Engineering		69000	20000
Medical Sciences	A		B
Commerce	D	C	
Arts	E	59000	F

258. Which of the following is not true?

(a) E + F = 0 (b) C = 49000

(c) E + 10000 = 0 (d) None of these

259. The total number of applicants in the four given streams in 2007 was

(a) 1339000 (b) 1739000

(c) 1439000 (d) 1349000

260. The total increase in the number of applicants in the Arts stream in 2008 as compared to 2007 as a percentage (approximate)of the total number of applicants in the four given streams in 2007 is

(a) 9% (b) 6%

(c) 8% (d) 5%

2013

Directions for questions 261 to 263: Answer the questions on the basis of the information given below.

The table given below shows the data related to a few key financial indicators for fourteen European countries in the FY 2011-12.

Country	Inflation (%)	Long-term interest rate (% p.a.)	Debt to GDP ratio (in %)	Fiscal-deficit (as a % of GDP)
Austria	2.2	3.4	70.2	4.8
Belgium	3.4	3.9	100.8	4.8
Cyprus	2.2	4.6	61.1	5.7
Denmark	2.2	3	46.6	4.6
Estonia	2.4	5.7	7.7	1.7
Finland	1.1	3.1	45.4	3.4
France	1.5	3.3	83.5	8
Germany	1.9	2.9	74.8	4.5
Italy	1.4	4.6	118	5.1
Latvia	1.2	7.5	48	8.6
Malta	1.7	4.4	72	3.8
Netherlands	1.1	3.1	64.6	5.6
Poland	2.4	5.9	53.9	7.3
Portugal	1.1	6.5	83.2	7.3

261. If the Fiscal-deficit of France was x Euros, which was 50% more than that of Belgium, then what was the Debt (in Euros) of Belgium in FY 2011-12?

(a) 13x (b) 7x

(c) 14x (d) 6.5x

262. The countries with the Long-term interest rate less than 4% per annum, Debt to GDP ratio less than 60% and Fiscal-deficit not more than 4.6% were given a AAA rating. The number of countries rated AAA among the fourteen in FY 2011-12 was

(a) 0 (b) 1

(c) 2 (d) None of these

263. If the GDP (in Euros) of Finland was 50% more than that of Italy, then by what percent was the Fiscal-deficit (in Euros) of Italy more/less than that of Finland in FY 2011-12?

(a) 0

(b) 1.5

(c) 0.5

(d) Cannot be determined

2015

Directions for questions 264 to 267 : Answer the questions on the basis of the information given below.

The total electricity production of five thermal power plants in India in year 2009-10 is given in the table below. Capacity utilization for any power plant is the percentage of maximum capacity, of that power plant, which is used for power production.

Maximum capacity (100%) = Capacity utilization (In %) + Unutilized production (In %)

Power Plant	Capacity Utilization	Unutilized production (In MW units)	Number of units sold as a percentage of maximum capacity
A	93%	595	89%
B	88%	750	87%
C	92.50%	750	90%
D	86%	1190	85%
E	81%	1805	80%

	Production Cost (In Rs. / kw units)	Selling Price (In Rs. / Kw units)
A	2.1	3.4
B	2.25	3.2
C	2.0	2.9
D	2.35	3.0
E	2.2	2.8

Total cost of production = Units Produced (in Kw) × Production Cost (in Rs. / Kw units)

Total Revenue = Units Sold (in Kw) × Selling price (in Rs. / Kw units)

$$\text{Profitability} = \left(\frac{\text{Revenue} - \text{Cost}}{\text{Cost}}\right) \times 100\%$$

264. In the given year, if capacity of power plant B had 12.5% of the total power capacity of India, and thermal power capacity of India is 95% of its total power capacity. The total capacity of these 5 thermal power plants was what percentage of the total thermal power capacity of India?

(a) 91.92% (b) 85.5%

(c) 77.73% (d) 90%

265. Which of the following represents the decreasing order of units sold by the given 5 power plants?

(a) E > C > D > A > B

(b) C > E > A > D > B

(c) E > C > A > D > B

(d) C > A > E > B > D

266. Which power plant had the third highest profitability?

(a) A (b) C

(c) D (d) B

267. Which of the following statements is true?

(a) The power plant with the lowest percentage capacity utilization sold minimum number of units.

(b) The power plant with the second highest per unit selling price sold minimum number of units.

(c) The power plant B had the second lowest capacity.

(d) The total capacity of E was more than 10,000 MW units.

LEVEL - 3

1990

Directions for Questions 268 to 272: *Answer the questions on the basis of the information given below.*

The first table gives the number of saris (of all the eight colours) stocked in six regional showrooms. The second gives the number of saris (of all the eight colours) sold in these six regional showrooms. The third table gives the percentage of saris sold to saris stocked for each colour in each region. The fourth table gives the percentage of saris of a specific colour sold within that region. The fifth table gives the percentage of saris of a specific colour sold across all the regions.

Study the tables and for each of the following questions, choose the best alternative.

Table 1

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	267	585	244	318	132	173	195	83	1994
2	341	480	99	199	234	119	200	109	1781
3	279	496	107	126	100	82	172	106	1468
4	198	307	62	221	65	96	124	91	1164
5	194	338	120	113	82	60	125	124	1156
6	158	261	133	104	71	158	128	82	1095
Total	**1437**	**2454**	**765**	**1081**	**684**	**688**	**944**	**595**	**8658**

Table 2

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	122	164	71	165	40	84	97	45	788
2	124	200	37	78	67	47	73	50	676
3	21	57	7	24	9	14	20	11	163
4	79	85	22	164	18	46	43	54	511
5	29	36	22	17	9	18	19	16	166
6	1	3	2	2	1	3	2	4	18
Total	**376**	**545**	**161**	**450**	**144**	**212**	**254**	**180**	**2322**

Table 3

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	All
1	46	28	29	52	30	49	50	54	40
2	36	42	37	39	29	39	37	46	38
3	8	11	7	19	9	17	12	10	11
4	40	28	35	74	28	48	35	59	44
5	15	11	18	15	11	30	15	13	14
6	1	1	2	2	1	2	2	5	2
All	**26**	**22**	**21**	**42**	**21**	**31**	**27**	**30**	

Table 4

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow	Total
1	15	21	9	22	4	11	12	6	100
2	18	30	5	12	10	7	11	7	100
3	13	35	4	15	6	9	12	7	100
4	15	17	4	32	4	9	8	11	100
5	17	22	13	10	5	11	11	10	100
6	6	14	11	11	6	17	11	22	100

Table 5

Region	Blue	Green	Magenta	Brown	Orange	Red	Violet	Yellow
1	32	30	44	37	28	40	38	25
2	33	37	23	17	47	22	29	28
3	6	10	4	5	6	7	8	6
4	21	16	14	36	13	22	17	30
5	8	7	14	4	6	8	7	9
6	0	1	1	0	1	1	1	2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

268. Which region-colour combination accounts for the highest percentage of sales to stock?

(a) (1, Brown) (b) (2, Yellow)

(c) (4, Brown) (d) (5, Red)

269. Which colour is the most popular in region1?

(a) Blue (b) Brown

(c) Green (d) Violet

270. Which region sold the maximum percentage of magenta saris out of the total sales of magenta saris?

(a) 3 (b) 4

(c) 2 (d) 1

271. Out of its total sales, which region sold the minimum percentage of green saris?

(a) 1 (b) 6

(c) 4 (d) 2

272. In which region is the maximum percentage of blue saris sold?

(a) 2

(b) 3

(c) 1

(d) 4

Directions for Questions 273 to 276: *Answer the questions on the basis of the information given below.*

The table below gives the achievements of Agricultural Development Programmes from 1983 – 84 to 1988 – 89. Study the following table and for each of the following questions, choose the best alternative.

Programme	83 – 84	84 - 85	85 - 86	86 - 87	87 - 88	88 – 89
Irrigation (Cumulative in Million Hectares)						
Major & Medium	22.05	22.70	23.20	24.00	24.60	25.32
Minor	28.60	32.77	32.77	34.20	34.00	35.14
High yielding varieties (Million Hectares)						
1. Paddy	16.90	18.20	19.70	18.70	21.70	22.80
2. Wheat	15.90	16.10	16.80	17.80	19.40	19.10
3. Jowar	3.10	3.50	3.90	4.40	5.30	5.10
4. Bajra	2.90	3.60	4.60	4.70	5.40	5.20
5. Maize	1.40	1.60	1.60	1.70	1.90	2.00
Consumption of Chemical fertilizers (Million tons)						
1. Nitrogen	3.42	3.68	4.07	4.22	5.20	5.49
2. Phosphate	1.11	1.21	1.32	1.44	1.73	1.89
3. Potash	0.59	0.62	0.67	0.73	0.78	0.84
Gross Cropped area (Million hectares)						
	174.8	173.1	177.00	172.6	180.4	187.8

273. The consumption of chemical fertilizer per hectare of gross cropped area is lowest for the year

(a) 1984 – 85 (b) 1985 – 86

(c) 1986 – 87 (d) 1987 – 88

274. In which year does the area cropped under high yielding varieties show a decline for the maximum number of crops?

(a) 1988 – 89 (b) 1985 – 86

(c) 1986 – 87 (d) None of these

275. How much area, in million hectares, was brought under irrigation during the year 1986-87?

(a) 58.20 (b) 1.43

(c) 0.80 (d) 2.23

276. It is possible that a part of the minor irrigated area is brought under major and medium areas. In which year has this definitely happened?

(a) 1984 – 85 (b) 1985 – 86

(c) 1986 – 87 (d) 1987 – 88

2005

Directions for Questions 277 to 280: *Answer the questions on the basis of the information given below:*

The year is 2089. Beijing, London, New York, and Paris are in contention to host the 2096 Olympics. The eventual winner is determined through several rounds of voting by members of the IOC with each member representing a different city. All the four cities in contention are also represented in IOC.

(a) In any round of voting, the city receiving the lowest number of votes in that round gets eliminated. The survivor after the last round of voting gets to host the event.

(b) A member is allowed to cast votes for at most two different cities in all rounds of voting combined. (Hence, a member becomes ineligible to cast a vote in a given round if both the cities (s)he voted for in earlier rounds are out of contention in that round of voting.)

(c) A member is also ineligible to cast a vote in a round if the city (s)he represents is in contention in that round of voting.

(d) As long as the member is eligible, (s)he must vote and vote for only one candidate city in any round of voting.

The following incomplete table shows the information on cities that received the maximum and minimum votes in different rounds, the number of votes cast in their favour, and the total votes that were cast in those rounds.

Round	Total votes cast	Maximum votes cast		Eliminated	
		City	No. of votes	City	No. of votes
1		London	30	New York	12
2	83	Paris	32	Beijing	21
3	75				

It is also known that:

- All those who voted for London and Paris in round, 1 continued to vote for the same cities in subsequent rounds as long as these cities were in contention. 75% of those who voted for Beijing in round 1, voted for Beijing in round 2 as well.
- Those who voted for New York in round 1, voted either for Beijing or Paris in round 2.
- The difference in votes cast for the two contending cities in the last round was 1.
- 50% of those who voted for Beijing in round 1, voted for Paris in round 3.

277. What percentage of members from among those who voted for New York in round 1, voted for Beijing in round 2?

(a) 33.33

(b) 50

(c) 66.67

(d) 75

278. What is the number of votes cast for Paris in round 1?

(a) 16

(b) 18

(c) 22

(d) 24

279. What percentage of members from among those who voted for Beijing in round 2 and were eligible to vote in round 3, voted for London?

(a) 33.33

(b) 38.10

(c) 50

(d) 66.67

280. Which of the following statements must be true?

I. IOC member from New York must have voted for Paris in round 2.

II. IOC member from Beijing voted for London in round 3.

(a) Only I

(b) Only II

(c) Both I and II

(d) Neither I nor II

2008

Directions for Questions 281 to 283: *Answer the following questions based on the information given below:*

For admission to various affiliated colleges, a university conducts a written test with four different sections, each with a maximum of 50 marks. The following table gives the aggregate as well as the sectional cut-off marks fixed by six different colleges affiliated to the university. A student will get admission only if he/she gets marks greater than or equal to the cut-off marks in each of the sections and his/her aggregate marks are at least equal to the aggregate cut-off marks as specified by the college.

	Sectional Cut – off Marks				Aggregate Cut-off Marks
	Section A	Section B	Section C	Section D	
College 1	42	42	42		176
College 2		45	45		175
College 3			46		171
College 4	43			45	178
College 5	45		43		180
College 6		41		44	176

281. Bhama got calls from all colleges. What could be the minimum aggregate marks obtained by her?

(a) 180 (b) 181
(c) 196 (d) 176
(e) 184

282. Charlie got calls from two colleges. What could be the minimum marks obtained by him in a section?

(a) 0 (b) 21
(c) 25 (d) 35
(e) 41

283. Aditya did not get a call from even a single college. What could be the maximum aggregate marks obtained by him?

(a) 181
(b) 176
(c) 184
(d) 196
(e) 190

ANSWERS

1. (b)	**2.** (d)	**3.** (d)	**4.** (a)	**5.** (a)	**6.** (b)	**7.** (a)	**8.** (d)	**9.** (d)	**10.** (c)
11. (c)	**12.** (b)	**13.** (d)	**14.** (b)	**15.** (c)	**16.** (d)	**17.** (d)	**18.** (d)	**19.** (a)	**20.** (d)
21. (a)	**22.** (a)	**23.** (b)	**24.** (b)	**25.** (d)	**26.** (a)	**27.** (b)	**28.** (b)	**29.** (d)	**30.** (a)
31. (a)	**32.** (c)	**33.** (a)	**34.** (b)	**35.** (c)	**36.** (d)	**37.** (b)	**38.** (c)	**39.** (b)	**40.** (c)
41. (d)	**42.** (b)	**43.** (a)	**44.** (d)	**45.** (c)	**46.** (d)	**47.** (b)	**48.** (b)	**49.** (a)	**50.** (b)
51. (d)	**52.** (c)	**53.** (d)	**54.** (b)	**55.** (b)	**56.** (c)	**57.** (a)	**58.** (a)	**59.** (c)	**60.** (c)
61. (a)	**62.** (b)	**63.** (a)	**64.** (b)	**65.** (a)	**66.** (d)	**67.** (b)	**68.** (a)	**69.** (b)	**70.** (d)
71. (b)	**72.** (c)	**73.** (b)	**74.** (a)	**75.** (b)	**76.** (a)	**77.** (c)	**78.** (c)	**79.** (c)	**80.** (b)
81. (d)	**82.** (c)	**83.** (a)	**84.** (b)	**85.** (a)	**86.** (c)	**87.** (d)	**88.** (d)	**89.** (a)	**90.** (b)
91. (b)	**92.** (c)	**93.** (d)	**94.** (a)	**95.** (d)	**96.** (b)	**97.** (d)	**98.** (d)	**99.** (b)	**100.** (d)
101. (b)	**102.** (b)	**103.** (a)	**104.** (c)	**105.** (b)	**106.** (b)	**107.** (c)	**108.** (b)	**109.** (a)	**110.** (d)
111. (b)	**112.** (b)	**113.** (d)	**114.** (c)	**115.** (b)	**116.** (d)	**117.** (a)	**118.** (c)	**119.** (d)	**120.** (a)
121. (c)	**122.** (c)	**123.** (b)	**124.** (b)	**125.** (b)	**126.** (b)	**127.** (b)	**128.** (d)	**129.** (d)	**130.** (b)
131. (c)	**132.** (c)	**133.** (d)	**134.** (d)	**135.** (a)	**136.** (b)	**137.** (c)	**138.** (d)	**139.** (d)	**140.** (b)
141. (d)	**142.** (d)	**143.** (a)	**144.** (a)	**145.** (b)	**146.** (b)	**147.** (a)	**148.** (b)	**149.** (d)	**150.** (d)
151. (b)	**152.** (c)	**153.** (b)	**154.** (d)	**155.** (b)	**156.** (c)	**157.** (c)	**158.(c)**	**159.**(d)	**160.**(b)
161. (c)	**162.** (b)	**163.** (b)	**164.** (b)	**165.** (b)	**166.** (a)	**167.** (a)	**168.** (c)	**169.** (d)	**170.** (b)
171. (b)	**172.** (d)	**173.** (b)	**174.** (d)	**175.** (a)	**176.** (c)	**177.** (b)	**178.** (c)	**179.** (a)	**180.** (d)
181. (a)	**182.** (c)	**183.** (a)	**184.** (b)	**185.** (d)	**186.** (c)	**187.** (b)	**188.** (a)	**189.** (d)	**190.** (b)
191. (a)	**192.** (d)	**193.** (a)	**194.** (d)	**195.** (c)	**196.** (c)	**197.** (c)	**198.** (a)	**199.** (d)	**200.** (b)
201. (a)	**202.** (c)	**203.** (a)	**204.** (d)	**205.** (b)	**206.** (c)	**207.** (a)	**208.** (c)	**209.** (a)	**210.** (b)
211. (d)	**212.** (a)	**213.** (b)	**214.** (d)	**215.** (d)	**216.** (c)	**217.** (a)	**218.** (c)	**219.** (b)	**220.** (c)
221. (c)	**222.** (c)	**223.** (c)	**224.** (a)	**225.** (a)	**226.** (d)	**227.** (e)	**228.** (a)	**229.** (d)	**230.** (e)
231. (e)	**232.** (b)	**233.** (c)	**234.** (e)	**235.** (a)	**236.** (b)	**237.** (e)	**238.** (a)	**239.** (*)	**240.** (c)
241. (a)	**242.** (d)	**243.** (b)	**244.** (c)	**245.** (c)	**246.** (b)	**247.** (c)	**248.** (d)	**249.** (c)	**250.** (c)
251. (b)	**252.** (a)	**253.** (c)	**254.** (c)	**255.** (a)	**256.** (c)	**257.** (c)	**258.** (d)	**259.** (a)	**260.** (b)
261. (c)	**262.** (c)	**263.** (a)	**264.** (d)	**265.** (b)	**266.** (d)	**267.** (b)	**268.** (c)	**269.** (b)	**270.** (d)
271. (b)	**272.** (a)	**273.** (a)	**274.** (a)	**275.** (d)	**276.** (d)	**277.** (d)	**278.** (d)	**279.** (d)	**280.** (a)
281. (b)	**282.** (c)	**283.** (c)							

SOLUTIONS

LEVEL - 1

For questions 1 to 5:

$$\text{Per Capita Income} = \frac{\text{(National Income)}}{\text{(Population)}}$$

Year	Per Capita Income	increase over previous year
1984-85	3097.62	-
1985-86	3482.32	384.70
1986-87	3786.44	304.12
1987-88	4202.98	416.54
1988-89	4856.73	653.75
1989-90	5319.01	462.28

Year	Population (in crore)	Percentage increase over the previous year	Per Capita Income	Percentage increase over the previous year
1984-85	74	-	3097.63	-
1985-86	75	1.35%	3482.32	12.43%
1986-87	77	2.66%	3786.44	8.73%
1987-88	78.5	1.94%	4202.98	11.01%
1988-89	80	1.91%	4856.73	15.56%
1989-90	81.5	1.87%	5319.01	9.51%

1. b As it can be clearly seen, the increase is lowest for the year 1986 – 87 = Rs. 304 .12

2. d Per Capita Income is highest for the year 1989 – 90 ≈ 5319.

3. d Required difference is highest for the year 1988 - 98, 13.65.

4. a It is apparent that the rate of increase of population is lowest for the year 1985-86 viz.1.35%.

5. a Among the years given in the answer choices, the increase in per capita income compared to previous year is highest for the year 1985 - 86.

6. b Thus, we can see that Solid Fuels and Petroleum together constitute more than 60% of total energy in both World and Asia for the given period.

7. a As seen from the above table, Petroleum is the fuel whose proportion in the total energy demand increases during 1990-2000 and decreases during 2000-2010 for both World and Asia.

8. d In case of Asia, for the given answer choices, we can make the following table:

		1990	2000	2010
Total Energy		10	20	33
Natural Gas	Value	0.5	2.5	5
	Proportion	5%	12.50%	15.15%
Solid Fuels	Value	4	5	10
	Proportion	40%	25%	30.30%
Nuclear	Value	0.5	1	1.3
	Proportion	5%	5%	3.90%
Hydropower	Value	1	1.5	2
	Proportion	10%	7.50%	6.06%

Hence, we can see that the proportion of Hydropower goes on decreasing over the period.

9. d In case of the World, for the answer choices, we can make the following table.

		1990	2000	2010
Total Energy		150	200	250
Natural Gas	Value	30	40	50
	Proportion	20%	20%	20%
Solid Fuels	Value	50	60	75
	Proportion	33.30%	30%	30%
Nuclear	Value	10	20	25
	Proportion	6.66%	10%	10%
Hydropower	Value	10	10	20
	Proportion	6.66%	5%	8%

Hence, we can see that the proportion of Nuclear gas in total energy demand of the World remains constant over the given period and its proportion will increase in the total energy demand in Asia.

(Use information of the question number 70.)

10. c Required percentage growth

$$= \frac{(68718 - 42137) \times 100}{42137}.$$

Students please note that to calculate the exact value of this expression, we need calculator. Since, options given are not very close to each other so we can approximate values. And using approximations we get the value of required ratio

$$= \frac{(68600 - 42000) \times 100}{42000} = \frac{2650}{42} = 63\%.$$

11. c

Books	1975	1980	Percentage growth
Primary	42137	68718	63%
Secondary	8820	20177	125%
Higher Secondary	65303	82175	26%
Graduate Level	25343	36697	45%

Hence, percentage growth is least for higher secondary books viz.26%.

12. b Again referring to the above table we can see that the percentage growth rate is maximum for secondary level books viz.125%.

13. d It can be seen from the given table that though primary level books have shown a consistent growth, it has declined in the year 1978. On the other hand even Secondary and Higher secondary level books have shown a consistent increase except for the year 1977 when it had declined. But the graduate level books have shown a consistent growth over the period.

For questions 14 to 17:

The data given in the question can be computed as :

14. b From the first week data we can arrive at the following work pattern of Bankatlal for the 1st month.

First Month :

	1st week	2nd week	3rd week	4th week
Hours of rest	2	5	2	7
Working hrs.	5	2	5	3
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.100	Rs.20	Rs.100	Rs.20
Total Wage per week	Rs.600	Rs.120	Rs.600	Rs.120

Thus his total wage = (600+120+600+120) = Rs.1440

15. c Let us compile the data for 2nd, 3rd and 4th month.

Second Month :

	5th week	6th week	7th week	8th week
Hours of rest	3	7	3	7
Working hrs.	7	3	7	3
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.140	Rs.30	Rs.140	Rs.30
Total Wage per week	Rs.840	Rs.180	Rs.840	Rs.180

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.120	Rs.40	Rs.120	Rs.40
Total Wage per week	Rs.720	Rs.240	Rs.720	Rs.240

Fourth Month :

	13th week	14th week	15th week	16th week
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.160	0	Rs.160	0
Total Wage per week	Rs.960	0	Rs.960	0

Total wage for 1st month = Rs.1440

Total wage for 2nd month = (840 +180 +840 +180)
= Rs.2040

Total wage for 3rd month = (720 + 240 + 720 + 240)
= Rs.1920

Total wage for 4th month = (960+960) = Rs.1920

Total wage for the 4 months
= (1440+2040+1920+1920)
= 7320

Hence the average salary = $\frac{7320}{4}$ = Rs.1830.

16. d Using the above data, we can revise the wage compilation for the third month as given below:

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.150	Rs.50	Rs.150	Rs.50
Total fine per day	Rs.20	Rs.30	Rs.20	Rs.30
Effective wage per day	Rs.130	Rs.20	Rs.130	Rs.20
Total Wage per week	Rs.780	Rs.120	Rs.780	Rs.120

So now his third month age = (780+120+780+120) = Rs.1800.

Previously he used to earn Rs.1920 in the third month.

Hence change in Bankatlal's salary for the 3rd month = (1920 – 1800) = Rs.120.

17. d For the fourth month, the new wage compilation will be as given below :

Fourth Month :

	9th week	10th week	11th week	12th week
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.400	0	Rs.400	0
Total fine per day	0	Rs.40	0	Rs.40
Effective wage per day	Rs.400	-Rs.40	Rs.400	-Rs.40
Total Wage per week	Rs.2400	-Rs.240	Rs.2400	-Rs.240

So now his total wage for the 4th month

= (2400 + 2400 – 240 – 240) = Rs.4320.

Since the calculations for the first two months are made as per the old scheme of things, this has already been computed.

Total wage for 1st month = Rs.1440

Total wage for 2nd month = Rs.2040

Calculation for the third and fourth month are as per new calculations and they are :

Total wage for 3rd month = Rs.1800

Total wage for 4th month = Rs.4320

Therefore, total salary for the four months = (1440 + 2040 + 1800 + 4320)

= Rs.9600.

18. d We know, Dividends + Retained earnings = Profit before tax – Tax.

Tax = Profit before tax – (Dividends + Retained earnings).

Figure (in Rs. Lakh)	1991	1992	1993	1994
Profit before Tax	315	170	525	790
Dividends + Retained earnings	170	100	305	510
Tax	145	70	220	280
Tax per rupee of 'Profit before tax'	0.46	0.41	0.42	0.35

Hence, tax per rupee of 'Profit before Tax' was the lowest in 1994.

19. a

Figure (in Rs. Lakh)	1991	1992	1993	1994
Sales	3270	2620	4725	6435
Share Capital	98	98	205	310
Sales per rupee of share capital	33.36	26.73	23.04	20.75

Hence, sales per rupee of share capital was the highest in 1991.

20. d

Figure (in Rs. Lakh)	1991	1992	1993	1994
Profit before Tax	315	170	525	790
Sales	3270	2620	4725	6435
Profit before tax per rupee of sales	0.09	0.06	0.11	0.12

Hence, profit before tax per rupee of sales was the highest in 1994.

21. a

Figure (in Rs. Lakh)	1991	1992	1993	1994
Reserves	80	220	290	535
Retained earnings	140	70	245	400
Percentage addition to reserves	175%	31.81%	84.48%	74.76%

Hence, the highest percentage addition to reserves was in 1991.

22. a From the above table, it is clear that the amount of reserves at the end of 1994

= (535 + 400) = Rs.935 lakh.

23. b It can be seen that the market share of CO in Kolkata has halved in 1994. None of the other products show such a drastic decrease in any city. Hence, percentage decrease in market share = 50%.

24. b Mumbai and Kolkata have two products whose market shares were increased. Chennai has 1 while Delhi has none.

25. d We can see that among the given options, the market share of HD decreased in Mumbai, Kolkata and Delhi. The market share of CO decreased in Kolkata, Delhi and Chennai and the market share of BN decreased in Mumbai.

26. a None of the products had 100% market share.

27. b Only MT doubled its market share in Kolkata in 1993-94.

28. b Since time taken to manufacture Q by both the machines is the least, we have to manufacture only Q in order to maximize the output for the day. In such a case, total number of units of Q produced by M1 = $\frac{(8 \times 60)}{6}$ = 80 units and that by M2 = $\frac{(8 \times 60)}{6}$ = 80 units. So the maximum number of units that can be produced in one day

= (80 + 80) = 160 units.

29. d If M1 works at half of its normal efficiency, time taken by M1 to manufacture 1 unit of P = 20 min and Q = 12 min. For producing maximum number of units, we have to produce Q on M2 first as it takes only 6 min per piece. Also since at least one unit of P has to be manufactured and it is more efficient to do so on M2, we would do that. So time taken to manufacture 1 unit of P on M2 = 8 min. Hence, time remaining on M2 = (480 – 8) = 472. In this remaining time number of units of Q that can be manufactured on M2 = $\frac{472}{6}$ = 78 (only completed units taken). Now since it takes less time to manufacture Q on M1 as well, we will maximize Q on M1. Since 1 unit of number of units that can be produced = $\frac{(8 \times 60)}{12}$ = 40. Hence, the total number of units manufactured = (1 + 78 + 40) = 119 units.

30. a In order to minimize time required, we will manufacture P on M2 and Q on M1. Number of machine hours required to manufacture 30 units of P on M2 = (30 × 8) = 240 min = 4 hr. Number of machine hours required to manufacture 25 units of Q on M1 = (25 × 6) = 150 min = 2.5 hr. So total time taken = (4 + 2.5) = 6.5 hr or 6 hr 30 min.

31. a Since P has to be produced in more number than Q and since time taken to produce P is least on M2, to maximize the output utilize the entire time available on M2 for producing P. Number of units of P produced in this time = $\frac{(8 \times 60)}{8}$ = 60 units. Now since the number of units of Q should be one-third that of P, we should manufacture 20 units of Q. To manufacture this on M1, it would take (20 × 6) = 120 min. So there are still (480 – 120) = 360 min of M1 to be utilized. Now for every 3 units of P that is manufactured, we have to manufacture 1 unit of Q. To run one such cycle on M1, it would take (3 × 10 + 1 × 6) = 36 min. Hence in 360 min, we have 10 such cycles and utilize all the idle time of M1. Hence, to maximize the output under the given condition it is possible to have no idle time on any of the machines.

32. c The least efficient way is the option that gives least production with highest idle time. So we can compare the options in the following two ways. Assume that production is constant (viz. LCM of 48, 64, 53 and 71) in all 4 options and compare the corresponding idle time. Or we can assume the idle time to be constant (viz. LCM of 3, 12, 10 and 9) in all 4 options and compare the corresponding production. The latter method is more preferable as finding LCM of idle time is easier. So LCM of 3, 12, 10, 9 = 180. If we assume that the idle time has to be 180 min, then as per option (a) we would get production = $\left(\frac{180}{3} \times 48\right)$ = 2,880 units, as per option (b), we would get production = $\left(\frac{180}{12} \times 64\right)$ = 960 units, as per option (c), production = $\left(\frac{180}{10} \times 53\right)$ = 954 units and as per option (d), production = $\left(\frac{180}{9} \times 71\right)$ = 1,420 units. Since option (c) gives the least production, it is the least efficient way.

33. a Total requirement of cloth

= Total number of shirts × Cloth required per shirt

= (20 + 30 + 30 + 10 + 10) × 1000 × 1.5 = 1,50,000 m.

34. b Total low quality cloth consumed

= 1.5 (30% of 30000 + 30% of 30000 + 40% of 10000 + 90% of 10000)

= 46,500 m.

35. c Total quantity of high quality cloth consumed by A-type shirts = (80% of 20000) × 1.5 = 24,000 m.

36. d We only know the relationship between the type of shirt and cloth used and type of shirt and dye used. We cannot find any relationship between type of cloth and dye used.

37. b Amount of low quality die used for C-type shirts

= (40% of 30000)

= 12,000 units.

Amount of low quality die used for D-type shirts

= (60% of 10000)

= 6,000 units.

Hence, required ratio = $\left(\frac{12000}{6000}\right)$ = 2 : 1.

38. c Amount invested on B, C, D and E in year 1

$= 4.6 + 5.8 + 3.11 + 10.6 = 24.11$

Amount invested on B, C, D and E in year 3

$= 18.7 + 21.2 + 7.7 + 29.8 = 77.4$

$\therefore$ Percentage increase

$$= \frac{77.4 - 24.11}{24.11} \times 100 \approx 221\%$$

39. b Company E's investment for years 1 to 3

$= 10.6 + 17.4 + 29.8 = 57.8$

Company F's investment for years 1 to 3

$= 7.8 + 25.3 + 60.1 = 93.2$

$\therefore$ Ratio = 57 : 93 = 19 : 31

40. c Total investment in year 2

$= 6.7 + 7.5 + 12.5 + 5.6 + 17.4 + 25.3 = 75$

D's contribution in year 2 = 5.6

$$\therefore \text{ Percentage contribution} = \frac{5.6}{75} = 7.4\%$$

41. d As we can see from the table, none of the investments increases from year 1 to 3.

Hence, none of these.

42. b In year 2,

$A + B + C = 6.7 + 7.5 + 12.5 = 26.7$

$D + E + F = 5.6 + 17.4 + 25.3 = 48.3$

Percentage difference

$$= \frac{48.3 - 26.7}{26.7} = 80.8\% \approx 81\%$$

43. a Lipton production is 1.64 (in '000 tonnes) which corresponds to 64.8% capacity. Maximum capacity will be 100%. For 64.8% it is 1.64 .

$\therefore$ For 100% it will be

$$\left(\frac{100}{64.8}\right) \times 1.64 \approx \frac{100}{65} \times 1.64$$

$\approx$ 2.53 (in '000 tonnes).

44. d This can be represented in the following manner.

	Production ('000 tonnes)	Capacity utilisation (%)	Total capacity (100%)	Unutilised capacity
	A	sB	C = A/B ×100	C - A
Brooke Bond	2.97	76.50	3.88	0.912
Nestle	2.48	71.20	3.48	1.003
Lipton	1.64	64.80	2.53	0.89
MAC	1.54	59.35	2.59	1.05

Hence, we find that the maximum unutilised capacity is for MAC, viz. 1,050 tonnes.

45. c 61.3 % $\equiv$ 11.6

$$\therefore 100\% \equiv \left(\frac{100}{61.3}\right) \times 11.6 \approx \left(\frac{100}{62}\right) \times 11.6 \approx 18.7$$

$\simeq$ 18.7 tonnes (in '000)

46. d From the data that is given, we cannot say anything about the price of coffee for the companies among others.

47. b Total sales of all brands

$= (31.15 + 26.75 + 15.25 + 17.45) =$ Rs. 90.6 crore

Total sales value of others = 132.8 – 90.6 = Rs. 42.2 crore

$$\text{Required percentage} = \frac{42.2}{132.8} \times 100 \approx \frac{42}{132} \times 100$$

$= 31.18 \approx 32\%$.

48. b Originally for the fifth month, 4 people were scheduled to do coding. This would have cost them (10000 × 4) = Rs. 40,000. Now there are 5 people who are working on design in the fifth month.

The total cost for this would be (20000 × 5)

= Rs.1,00,000.

Hence, percentage change in the cost incurred in the fifth month $= \frac{(100000 - 40000)}{40000} \times 100 =$ 150%.

49. a As given in the previous question, it can be seen that the coding stage is now completed in 6th, 7th and 8th months. Number of people employed in the 6th month is 4 and in the 8th month is 5. In the 7th month also there are 5 people employed (from previous data). Hence, if we were to combine these months, we find that the total cost incurred in the coding stage = (5 + 5 + 4) × 10000 = Rs.1,40,000.

50. b The difference in the cost will arise only because of the following months: 5, 6 and 8. And we can compare the costs as given below

	Original scheme			New scheme		
Month	People	Cost per man/ month	Total cost for the month	People	Cost per man/ month	Total cost for the month
5	4	10000	40000	5	20000	1,00,000
6	5	10000	50000	4	10000	40,000
8	4	10000	40000	5	10000	50,000
	Total cost		Rs. 1,30,000	Total cost		Rs. 1,90,000

It can be clearly seen that the difference in the cost between the old and the new technique is Rs. 60,000.

51. d The cost incurred in various stages under the present scheme is as given below.

	Month	People	Cost per man/ month	Total cost for the month	Total cost for the stage
Specification	1	2	40000	80000	Rs. 2,00,000
	2	3	40000	120000	
Design	3	4	20000	80000	Rs. 2,40,000
	4	3	20000	60000	
	5	5	20000	100000	
Coding	6	4	10000	40000	Rs. 1,40,000
	7	5	10000	50000	
	8	5	10000	50000	
Testing	9	4	15000	60000	Rs. 75,000
	10	1	15000	15000	
Maintenance	11	3	10000	30000	Rs. 90,000
	12	3	10000	30000	
	13	1	10000	10000	
	14	1	10000	10000	
	15	1	10000	10000	

Hence, the most expensive stage is Design.

52. c If we look at the above table again, it is clear that the average cost for 5 consecutive month period is lowest for months 11 to 15.

53. d Total investment in the two districts in 1995

$= 2932.1 + 7081.6 \approx 10{,}000.$

Total investment in the two districts in 1996

$= 3489.5 + 8352 \approx 11840.$

Required percentage $= \dfrac{(11840 - 10000)}{10000} \approx 18\%.$

54. b Total investment in electricity and thermal energy in both the districts in 1995 = (815.2 + 632.4 + 2065.8 + 1232.7) = 4746.1. Total investment made in that year

$= 2923.1 + 7081.6$

$= 10004.7 \approx 10000$

Hence, required percentage is $\dfrac{4746.1}{10{,}000} \approx 47\%.$

55. b Percentage increase in investment in electricity $\approx \dfrac{300}{2070} = 14\%$. Percentage increase in investment in chemical $\approx \dfrac{(986.4 - 745.3)}{745.31} \times 100$

$\approx \dfrac{240}{745} \approx 32\%.$

Percentage increase in investment in solar

$= \dfrac{428.6}{1792.1} \approx \dfrac{430}{1792} \approx 23\%$

Percentage increase in investment in nuclear

$= \dfrac{507.8}{1674.3} \approx \dfrac{500}{1670} \approx 29\%.$

Clearly percentage increase in investment in chemical is the highest.

56. c Total investment in Chittoor = 2923.1 + 3489.5

$= 6412.6 \approx 6410.$

Total investment in Khammam = 7081.6 + 8352

$\approx 15430.$

Required ratio $= \left(\dfrac{15430}{6410}\right) = 2.4.$ times.

57. a Percentage increase in the total investment in Khammam in 1996

$= \left(\dfrac{(8352 - 7081.6)}{7081.6}\right) \times 100 \approx \dfrac{1270}{7080} \approx 18\%$

Total investment in Khammam in 1997 will be $1.18 \times 8352 = 9855.36 \approx 9850$

58. a

Company	Cost/Room
Lokhandwala	225/536 "225/535 = 0.42
Raheja	250/500 = 0.50
IHCL	275/600 = 0.45
ITC	300/300 = 1

From the right hand side column, for Lokhandwala Group, cost per room is least.

59. c In previous question, we have found out for which group the cost per room is least. To answer the second question, we need to take the reciprocals of fractions in the first question. Naturally, the answer will be same, i.e. Lokhandwala Group.

60. c Two projects are completed in 1998, one is Mumbai Heights and the second is Royal Holidays.

The cost of project is 250 + 225 = 475 crore. *Cost incurred = 475 + 47.5 = 522.5. (Students please note the last step. Rather than doing 1.1×475, it is convenient to do 475 + 10% of 475, which is = 475 + 47.5)

61. a Four projects are completed in 1999. They are: (i) Majestic Holiday, (ii) Supremo Hotel, (iii) Windsor Manor and (iv) Leela Hotels. It is very much similar to previous situation.

The cost of project is 250 + 300 + 275 + 235 = 1060

Hence, the cost incurred = $1060 \times (1.1)^2$

= 1282.6 crore

62. b Students! read the question carefully. It says what is the cost of projects completed by 2000.

It will be addition of previous two answers + Cost incurred for the projects completed in 2000. Approximate cost of projects completed by 2000 is $1282.6 + 522.5 + (250 \times (1.1)^3) \approx 2140$.

63. a If the amount of tariff consumed by sector 1 is the same, then we can directly compare the tariffs to the two regions and get the answer.

	Tariff 1994-95	% change over 1991-92	Tariff 1991-92
Region 1	425	+15%	369.5
Region 2	472	+5%	449.5
Region 3	420	-4%	437.5
Region 4	415	+8%	384.25
Region 5	440	+10%	400
	2172		2040.75

Hence, we can see that as compared to 1991-92, the net tariff in 1994-95 increased by

$$\frac{(2172 - 2040)}{2040} = 6.5\%$$

64. b

	Tariff 1994-95	% change over 1991-92	Tariff 1991-92
Sector 1	420	-4	437.5
Sector 2	448	+7	418.7
Sector 3	432	+6	407.5
Sector 4	456	+10	414.5
			1678.3

Hence, the average tariff for region 3 in 1991-92 is $\frac{1678.3}{4} = 419.5 = 420$ (Approximately)

65. a In 1994-95, the power consumed by various sectors out of 7875 megawatts can be given as follows.

Category	Percentage	Consumption in 94-95
Urban	25	1969
Domestic	20	1575
Industrial	40	3150
Rural	15	1181
		7875

Since there was a 10% decrease in domestic consumption of power in 1994-95, the domestic consumption in $1991\text{-}92 = \left(\frac{1575}{0.9}\right) = 1750$ megawatts. But this constitutes 20% of total power consumed in 1991-92 and the rural consumption constitutes 15% of total power in 1991-92.

Hence, in 1991-92 the rural consumption

$$= (1750 \times \frac{15}{20}) = 1312 \text{ megawatts.}$$

66. d We only know the tariff rates for the two years for various regions and sectors. But we do not know the category-wise break-up of tariffs, i.e. the rates for urban sector is not known. In the light of this, we cannot answer this question.

67. b Let us evaluate each of the above statements.

The average tariff in region 4

$$= \frac{(415 + 423 + 441 + 451)}{4} = 432.5 \text{ p/kwh}$$

$$\text{region 2} = \frac{(472 + 468 + 478 + 470)}{4} = 472 \text{ p/kwh}$$

$$\text{region 5} = \frac{(440 + 427 + 439 + 446)}{4} = 438 \text{ p/kwh}$$

Hence, the average tariff in region 2 is higher than in region 5. This statement is true. Note that we cannot evaluate the third statement at all.

68. a In 1974, agricultural loans amounted to

= Rs. 34.54 million.

Loans from rural banks in 1974

$= (260 \times 98 \times 243)$

= Rs. 6.19 million.

Hence, total amount of loans

$= (34.54 + 6.19)$

= Rs. 40.73 million.

Hence, percentage of agricultural loans

$$= \frac{34.54}{40.73} = 84.79\% = 85\% \text{ (Approximately)}$$

69. b

Year	No. of rural banks	Average no. of loans	Total no. of loans
1970	90	28	2520
1971	115	39	4485
1972	130	52	6760
1974	260	98	25480
1975	318	121	38478
1980	605	288	174240
1981	665	312	207480
1983	840	380	319200

So the total number of loans up to 1980 = (2520 + 4485 + 6760 + 25480 + 38478 + 174240) = 251963

And the total number of rural loans in 1983 = 319200

Hence, $\frac{251963}{319200} = 78.93\% = 80\%$ (Approximately).

70. d

Year	Total no. of loans	Increase
1970	2520	-
1971	4485	1965
1972	6760	2275
1974	25480	18720
1975	38478	12998
1980	174240	-
1981	207480	33240
1983	319200	-

Thus, we find that the maximum increase in the number of loans for rural banks is in 1980-81.

Note: Students please note that we have not calculated the increase for 1970, 1980 and 1983 as their previous years' figure is not known.

71. b The value of agricultural loan in 1983 is Rs. 915.7 million. But this at consumer price index (CPI) = 149. So if we want this value at 1970 CPI, viz. 43, it would simply be

$$\frac{43 \times 915.7}{149} = 264.26.$$

72. c Students please note that what they are really asking is for which year the average number of loans is the least, and we can see in 1970.

73. b From 1970 to 1983, in 13 years the number of agricultural loans went up from 18,300 to 2,11,600, an increase of 1,93,300. So percentage increase in this $= \frac{193300}{18300} = 1057$. However, this growth is spread across 13 years. Hence, simple annual rate of increase $= \frac{1057}{13} = 81.3\% = 81$ (Approximately).

74. a The CPI in 1970 is 43. But it has to be taken as 105. Presently in 1983 and 1975, the CPI is 149 and 78 respectively. Hence, they should actually be taken as $\left(149 \times \frac{105}{43}\right) = 363.83$ and $\left(78 \times \frac{105}{43}\right) = 190.46$ respectively. Hence, their difference = (363.83 – 190.46) = 173.37 = 174 (Approximately).

75. b Total value of loans

= Rural bank loans + Agricultural loans.

Rural bank loan in 1980 = (605 × 288 × 567) = Rs. 98.79 million.

Total value of agricultural loan in 1980

= Rs.498.4 million.

Hence, total loans in 1980

= (98.79 + 498.4) = 597.19.

But this is at a CPI = 131

If it is to be calculated at 1983 CPI, viz. 149, then its value will be $597.19 \times \left(\frac{149}{131}\right) = $ Rs. 679.24 million

= Rs. 680 million (Approximately).

76. a If we were to take the highest quantity supplied from various states in different months, we will get the following table:

Month	Highest supply	Total	Total percentage
April	7	73	9.5%
May	12	13	92.3%
June	9741	18015	54.0%
July	71497	90247	79.2%
August	77675	97961	79.2%
September	56602	110514	51.2%
October	79591	92219	86.3%
November	41872	45413	92.2%
December	14822	16578	89.4%
January	10922	11438	95.4%
February	11183	11285	99.0%
March	683	769	88.8%

Hence, we find that the highest percentage of apples supplied by any state is 99% (J & K in February).

77. c If we were to add the quantity of apples supplied by various states, it can be found that HP supplied 2,31,028 tonnes, UP supplied 258 tonnes, and J & K supplied 2,62,735 tonnes. Thus, it was J & K that supplied the maximum number of apples.

78. c If J & K supplied the highest quantity of apples, it is obvious that it would supply the highest percentage of total apples supplied as well.

79. c It is given that in case demand is more than the supply, additional demand is met by taking the stock from the cold storage. So it can be figured out that in all those months when supply was greater than the demand, no stock would have been used from the cold storage. Looking at the table, we can find that during the period May to September, no stock was taken from the cold storage, and hence supply should have been greater than the demand.

80. b Total quantity of apples supplied to Delhi during the year was (231028 + 258 + 262735)

= 494021 tonnes = 494021000 kg

If one tree yields 40 kg of apple, then the number of trees required to yield 49,40,21,000 kg

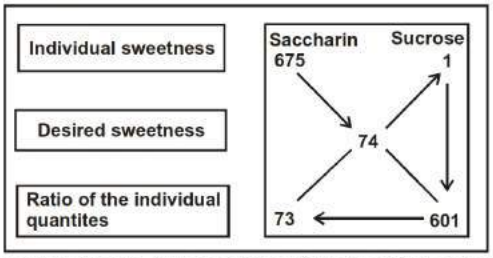
$$= \frac{494021000}{40} = 1,23,50,525 \text{ trees}$$

= 12.5 million trees (approximately)

81. d If there are 250 trees per hectare, then area required to have $12350525 = \frac{12350525}{250}$

= 49402 = 49450 (approximately)

82. c If the mixture is to be made 100 times as sweet as glucose, its sweetness should be 74. The ratio in which saccharin and sucrose be mixed to get the above level of sweetness is given by the following alligation table.



In other words, it means to achieve the given level of sweetness, you need to add 601 g of sucrose to 73 g of saccharin. Hence to 1 g of saccharin, the amount of sucrose to be added is $\frac{601}{73}$ = 8.23 g.

83. a $\frac{[(0.74)+(1.000)2+(1.7)3]}{6} = 1.31.$

84. b Total exports = Software export + Hardware export + Peripherals export

Hence, total export as a percentage of IT business:

For 1994-95 $= \frac{668}{2041} \times 100 = 32.7\%$

For 1995-96 $= \frac{775}{2886} \times 100 = 26.8\%$

For 1996-97 $= \frac{1383}{3807} \times 100 = 36\%$

For 1997-98 $= \frac{1970}{5031} \times 100 = 39\%$

For 1998-99 $= \frac{2672}{6052} \times 100 = 44\%$

85. a Percentage growth for 1995-96 = 41%, 1996-97 = 32%, 1997-98 = 32%, 1998-99 = 20%.

86. c Annual hardware exports did not decline steadily during 1994-99.

Annual peripheral exports did not increase steadily during 1994-99.

IT business in training during 1994-99

= 107 + 143 + 185 + 263 + 302 = 1000

IT business in maintenance during 1994-99

= 142 + 172 + 182 + 221 + 236 = 953

Hence, option (c) is correct.

87. d Total IT business hardware activity

in 1995-96 = 1037 + 35 = 1072

in 1996-97 = 1050 + 286 = 1336

in 1997-98 = 1205 + 201 = 1406

in 1998-99 = 1026 + 4 = 1030

Clearly, 1998-99 does not dominate 1996-97.

88. d In this question, there are two activities — hardware and peripherals. Thus, for year X to dominate year Y, at least one activity in year X has to be greater than that in year Y and the other activity in year X has to be greater than or equal to that in year Y. In (a), (b) and (c), while hardware dominates in one year, the peripherals dominate in the other.

89. a If the total number of factories is 100, then the total number of employees = 60 × 100 = 6000 of which 64.6% = 3876 work in wholly private factories.

Since the number of wholly private factories = 90.3, the answer $= \frac{3876}{90.3} = 43.$

Short cut: $0.64 \times \frac{60}{0.903} < \left(\frac{2}{3}\right) \times 60 = 45.$

90. b Value added per employee $= \frac{\text{Value added}}{\text{Employment}}$.

91. b Compound productivity $= \frac{\text{Gross output}}{\text{Fixed capital}}$.

Hence, compound productivity for various sectors is:

Public sector = 0.6, Central government = 0.725, States/Local = 0.47, Central and States or Local = 1.07, Joint sector = 1.23 and wholly private = 1.36.

Hence, the order should be: Wholly private, Joint, Central and State or Local Government, Central Government, Public sector and State or Local government.

92. c Calculate the ratios: Value added/employment and value added/fixed capital for the sectors mentioned in the choices. The respective values are:

Wholly private 0.9 and 1.25; Joint sector 1.59 and 1.19; Central/State/Local 1.8, 1.28; others 0.92 and 0.75.

93. d The number of factories in joint sector is 1.8% = 2700, thus, the number of factories in Central Government = 1% of (2700 x 100/1.8) = 1500.

Value added by Central Government = 14.1% of 1,40,000 crore = 19,740.

Hence, required average value added

$= \frac{19740}{1500}$ = Rs. 13.1 crore.

94. a As from the table, the deficit intensity from 1993-94 to 1997-98 are 5.1, 6.3, 7.6, 8 and 5.

Therefore, the highest growth rate is $\frac{7.6-6.3}{6.3}$ = 23.5%, which is in 1994-95.

95. d The highest growth rate

$$= \frac{7.6-6.3}{6.3} \times 100 = 23.5\%$$

96. b From the tables given,

Import of raw material = 10.1 × Sales (S) import of capital goods = 17.6 × Gross fixed assets (GFA)

Given imports = Raw materials + Capital goods

So import = 10.1 S + 17.6 GFA So imports = 14.2 S

Hence, 14.2 S = 10.1 S + 17.6 GFA

Hence, $\frac{S}{GFA} = \frac{17.6}{4.1} = 4.3$

97. d As the sales in different years are not given, the absolute value of exports and imports cannot be compared across years.

Deficit Intensity increases every year between 1993-94 and 1996-97.

98. d Count only those lays for which any size of yellow coloured fabric is produced.

They are lay number

1, 3, 4, 6, 7, 8, 9, 11, 12, 15, 21, 24, 25, 27

Hence, 14 is the answer.

99. b Count those lays for which extra-extra large fabric is produced of any colours, i.e. count the lay numbers for which at least one of XXL from 3 colours is non-zero.

They are lay number 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 22, 23, 24, 25, 26, 27 .

Hence, 16 is the answer.

100. d Again count lay number for which at least one of the XXL from yellow and white are non-zero.

Lay number 7, 8, 9, 10, 11, 12, 13, 14, 15, 21, 23, 24, 25, 26, 27.

Hence, 15 is the answer.

101. b The varieties for which there is surplus gives the answer. There are 4 such varieties.

102. b Put a decimal after the first two digit in the passengers column and it wil give the figure in millions.

In that case we have only 5 international airports of type A having more than 40 million passengers.

They are in serial number 1, 2, 3, 5, 9.

Rest all 'A' type airports are below 40 million.

103. a There are only six airports of USA among the top 10 busiest airports. They are in serial number 1, 2, 3, 5, 9, 10.

Hence, $\frac{6}{10} \times 100 = 60\%$.

104. c We have to calculate the percentage of passengers handled at Heathrow Airport.

Now total number of passengers in the 5 busiest airport is approximately

(77 + 72 + 63 + 62 + 60) million = 334 million

At Heathrow it is 62 million.

The approximate percentage is $\frac{60}{300} \times 100 \cong 20\%$

105. b All the international airports handle more than 30 million passengers. Among these only 6 airports are not located in USA. Hence, (b) is the correct option.

106. b BC → AC → AAC = 0

107. c $BD \xrightarrow{0} AE \xrightarrow{95.2} AAB$

∴ Least cost of sending one unit from any refinery to AAB

= 0 + 95.2 = 95.2.

108. b BB → AB → AAG = 311.1

Same as above.

109. a First we will have to check the minimum cost for receiving at AAA. This is 0 for AE. But, BB to AE is very high. Next is AC [314.5]. BB to AC is 451.1. After AC, the others are high.

Hence, 314.5 + 451.1 = 765.6 is the least cost.

110. d Number of refineries = 6

Number of depots = 7

Number of districts = 9

Therefore, number of possible ways to send petrol from any refinery to any district = 6 × 7 × 9 = 378.

111. b The highest cost is for the route

BE → AE → AAH = 2193.0

112. b Only R9 is that region which produces medium quality of crop – 2 and low quality of crop – 4.

113. d Statement (a) is not satisfied by R9.

Statement (b) is not satisfied by R3.

Statement (c) is incorrect as there are six such regions R1, R2, R3, R4, R9 and R11.

Statement (d) is correct.

114. c Three regions namely R9, R10 and R11.

115. b Total five lie between 10 E and 40 E.

Austria,	Bulgaria,	Libya,	Poland,	Zambia
N	N	N	N	S

$\frac{1}{5} = 20\%$

116. d Number of cities starting with consonant and in the northern hemisphere = 10.

Number of countries starting with consonant and in the east of the meridien = 13.

Hence, option (d) is the correct choice. The difference is 3.

117. a Three countries starting with vowels and in southern hemisphere — Argentina. Australia and Ecuador and two countries with capitals beginning with vowels — Canada and Ghana.

118. c Emp. numbers 51, 58, 64, 72, 73 earn more than 50 per day in complex operations.

Total = 5

119. d 80% attendance = 80% of 25 = 20 days

Emp. numbers 47, 51, 72, 73, 74, 79, 80.

Thus, total = 7

120. a

Emp. No.	Earnings E (medium)	No. of days D (medium)	E/D
2001151	159.64	13.33	11.97
2001158	109.72	9.61	11.41
2001164	735.22	12.07	60.91
2001171	6.10	4.25	-
2001172	117.46	8.50	13.81
2001179	776.19	19.00	40.85
2001180	1262.79	19.00	66.46

Hence, Emp. number 2001180 earns the maximum earnings per day.

121. c Emp. numbers 51, 58, 64, 71, 72 satisfy the condition.

[For emp. 64, you see 12 is not the double of 5. And 735 is not even double of 402.

Hence, $\frac{402}{5} > \frac{735}{12}$.

Note: Emp. numbers 48, 49, 50 are not eligible for earnings. Hence, they are not counted.

122. c Total revenue of 1999 = 3374

5% of 3374 = $3374 \times \frac{5}{100} = 168.7$

For 1999, revenue for Spain is 55, Rest of Latin America is 115, North Sea is 140, Rest of the world is 91.

So total four operations of the company accounted for less than 5% of the total revenue earned in the year 1999.

123. b **The language in the question is ambiguous.**

Taking the question to be more than 200% growth in revenue, the revenue in 2000 will be more than 3 times that in 1999. Hence, (b) is the answer.

Taking the revenue in 2000 to be more than 200% of that in 1999, the revenue in 2000 should be more than twice of that in 1999. Then there will be 4 operations.

124. b Four operations, as given below:

(1) North Africa and Middle-East

(2) Argentina

(3) Rest of Latin America

(4) Far East

have registered yearly increase in income before taxes and charges from 1998 to 2000.

125. b Percentage increase in net income before tax and charges for total world (1998-99)

$$= \frac{1375 - 248}{248} \times 100 = 454.4\%$$

Spain is making loss.

Percentage increase for North Africa and Middle-East

$$\frac{341 - 111}{111} \times 100 = 207.2\%$$

$$\text{Percentage increase for Argentina} = \frac{838 - 94}{94} \times 100$$

$$= 791.5\%$$

From the table one can directly say that there is no operation other than Argentina, whose percentage increase in net income before taxes and charges is higher than the average (world).

126. b Statement 1 is obviously wrong.

(b) $\frac{54}{65} > \frac{20}{52}$. Hence, (b) is correct.

(c) $\frac{500}{1168} > \frac{61}{187}$. Hence, (c) is wrong.

127. b Profitability of North Africa and Middle-East in 2000

$$= \frac{356}{530} = 0.67$$

Profitability of Spain in 2000 = $\frac{225}{43} = 5.23$

Profitability of Rest of Latin America in 2000 = $\frac{169}{252}$, i.e. < 1.

Profitability of Far East in 2000 = $\frac{189}{311} = < 1$

128. d Except Rest of Latin America and Rest of the World, all the operations are greater than 2.

129. d Options (a), (b) and (c), are ruled out. So the correct option is (d).

130. b Increase of HP is from 884 to 970, i.e. 86

Increase of Kerala is from 1004 to 1058, i.e. 54

Increase of Punjab is from 832 to 874, i.e. 42

Increase of Assam is 919 to 932, i.e. 13

Increase of J & K is 882 to 900, i.e. 18

Therefore, HP and Kerala are highest.

131. c Goa (1091 to 960) i.e. 131

Tamil Nadu (1044 to 986) i.e. 58

Bihar (1061 to 921) i.e. 140

Orissa (1037 to 972) i.e. 65

Therefore, Bihar should the sharpest decline over the period 1901 – 2001.

132. c Females outnumbering males means that the sex ratio is more than 1000.

Option (a), (b), and (d) are true.

133. d **Statement A:**

Success rate for males in 2003

$$= \frac{637}{60133} \times 100 \approx 1.06\%$$

Success rate for females in 2003

$$= \frac{399}{40763} \times 100 \approx 0.98\%$$

Hence, 'A' is false.

Statement B:

Success rate for females in 2002

$$= \frac{138}{15389} \times 100 \approx 0.89\%$$

Success rate for females in 2003

$$= \frac{399}{40763} \times 100 \approx 0.98\%.$$

Hence, 'B' is false.

134. d **Statement A:**

$$\text{Females selected} = \frac{48}{19236} \times 100 \approx 0.25\%$$

$$\text{Males selected} = \frac{171}{61205} \times 100 \approx 0.28\%$$

Hence, 'A' is false.

Statement B:

$$\text{Success rate for Males} = \frac{17}{684} \times 100 = 25\%$$

$$\text{Success rate for Females} = \frac{48}{138} \times 100 \approx 34.8\%$$

Hence, 'B' is false.

135. a **Statement A:**

Female absentees in 2002 (19236 – 15389) = 3847

$$= \frac{3847}{19236} \times 100 \approx 20\%$$

Female absentees in 2003 (45292 – 40763) = 4529

$$= \frac{4529}{45292} \times 100 \approx 10\%$$

Hence, 'A' is true.

Statement B:

Male absentees in 2003 (63298 – 60133) = 3165

$$= \frac{63298 - 60133}{63298} \times 100 \approx 5\%$$

Hence, 'B' is false.

136. b It happened only once i.e., on 17-Jul-02.

137. c From the table, we can see that for issue dated, 04 June-03, the 2nd round issue has a lower maturity and the competitive bids received are higher.

138. d On 07-Nov 02, the value of non-competitive bids in the 2nd round is greater than that of 1st round. So option (d) is not true.

139. d By looking up the table, in University of California - Berkeley median starting salary is $70,000 and annual tuition fee is $18,788.

140. b By looking up the table, the number of schools, uniformly better than Dartmouth College is 2, namely Stanford and New York University.

141. d 8 universities namely, Stanford, Harvard, Pennsylvania, Massachusetts, Chicago, Northwestern, Columbia and Duke university have single digit ranking on atleast 3 of the 4 parameters.

142. d Profitability is defined as percentage of sales. Approximately, Firm A has 20% profit, B has 16.66%, C has 20% and D has approximately 25% profit.

143. a $\frac{24568 + 25468}{89570} \times 100 \approx 55\%$

144. a Rahul and Yamini.

145. b Gayatri, Urvashi and Zeena cannot attend more than one workshop.

146. b Anshul, Bushkant, Gayatri and Urvashi cannot attend any of the workshops.

147. a **State Productivity (Tons per hectare)**

Haryana $\frac{19.2}{3.2} = 6$

Punjab $\frac{24}{4} = 6$

Andhra Pradesh $\frac{112}{22.4} = 5$

Uttar Pradesh $\frac{67.2}{16.8} = 4$

Hence, Haryana and Punjab have the highest productivity.

148. b Gujarat $\rightarrow \frac{24}{51} = 0.47$

Only per capita production of rice for Haryana, Punjab, Maharashtra and Andhra Pradesh are greater than 0.47.

149. d As seen from the table

Haryana, Gujarat, Punjab, MP, Tamil Nadu, Maharashtra, UP and AP are intensive rice producing states.

150. d For the shortest route, we have to consider the path A-C-F-J.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-C	790	1350
C-F	410	430
F-J	970	1150
Total	**2170**	**2930**

Hence, the price for travelling by the shortest route is Rs. 2930.

151. b For the lowest price we have to consider the path A-H-J.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-H	1950	1850
H-J	400	425
Total	**2350**	**2275**

If the company charges 5% below the minimum price of Rs. 2275 then it should charge 0.95 × 2275

= Rs. 2161

152. c If the airports C, D and H are closed, then the passenger must follow the path A-F-J for minimum price.

The table given below shows the distance and the corresponding price.

Path	Distance	Price
A-F	1345	1700
F-J	970	1150
Total	**2315**	**2850**

So the corresponding minimum price paid by a passenger is Rs. 2850.

153. b For minimum cost per km, we have to consider the path A-H-J

From solution of question 71, we know that the distance of path A-H-J is 2350 km and the price is Rs. 2275.

The price includes a margin of 10%.

So the minimum cost per km

$$= 2275 \times \frac{10}{11} \times \frac{1}{2350} = 0.88$$

154. d For minimum cost per km, again we have to consider the path A-H-J as illustrated in the solution of question 73.

The distance of path A-H-J is 2350 km.

For questions 155 to 157 : The table given below can be formed from the data given in the question.

Commodities	Maize	Rice	Sugar Cane	Cotton	Mustard Seeds
Total production cost (Rs. lakhs)	90	75	105	160	140
Profit per ton (Rs. lakhs)	30	15	20	15	40

155. b Profit percentage per ton for:

$$\text{Maize} = \frac{30}{90} \times 100 = 33.33\%$$

$$\text{Rice} = \frac{15}{75} \times 100 = 20\%$$

$$\text{Sugar Cane} = \frac{20}{105} \times 100 = 19.05\%$$

$$\text{Cotton} = \frac{15}{160} \times 100 = 9.375\%$$

$$\text{Mustard seeds} = \frac{40}{140} \times 100 = 28.57\%$$

So the profit percentage per ton is the highest for Maize.

156. c Two - Sugar Cane and Cotton.

157. c Total quantity of raw material used in production of 1 ton of Cotton $= \frac{27 \times 10^5}{54} = 50{,}000$ kg

The total area of land required

$$= \frac{10}{200} \times 50{,}000 \times 10^3$$

$$= 2500000 \text{ m}^2 = 2.5 \text{km}^2$$

For questions 158 to 160 :

158.c Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

So, A took a blue ball.

159.d Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by E and A:
Both statements II and III by E state that B took a blue ball and hence both are false as only one statement made on B is true. So statement I of both A and E are correct.

So, F took a red ball and B took a green ball.

Hence statement II by A was false.

So, C took a red ball.

160. b Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by B:

We know that statement I is definitely false as A took a blue ball. Also, statement III is false.

So, statement II made by B is true.

Considering the statements made by F: We already know that A took a blue ball and C took a green ball. Hence, both the statements I and II are false and therefore statement III made by F is true.

So, neither D took a yellow ball nor did he took a red ball.

Consider the statements made by D: We already know that statement II is false as F took a red ball. So, one of the statements I and III is true.

It is also given that balls of two different colours were not taken by any of the mentioned persons.

Case I: E took a yellow ball

D must have taken a blue ball and balls of white and black colour are not taken by any of the mentioned persons.

Case II: D took a green ball

E could have taken either a white or a black ball.

For four persons viz. A, F, C and B the exact color of the balls taken by them can be determined.

LEVEL - 2

161. c The estimated total expenditure

= 52.1+267.5+196.4+209.5

= 725.5 lakhs.

If it has to be kept within 700 lakhs, the expenditures have to be cut by 25.5 laks.

Cut in expenditure every year

$$= \left(\frac{25.5}{4}\right) = 6.375 \text{ lakhs.}$$

Hence, percentage cut for 1989

$$= \left(\frac{6.375}{15}\right) \times 100 = 42.5\%.$$

162. b The estimated costs of material and labour for different years are :

1988 = 2.1

1989 = 95+70+15+25+25 = 230

1990 = 80+45+12+18+20 = 175

1991 = 75+60+16+21+18 = 190

Required proportion

$$= \frac{2.1+230+175}{2.1+230+175+190} = 0.682$$

163. b Total material cost for all years

= (95+80+75+70+45+60+15+12+16+25+18+21)

= 532

Total labour cost for all years = (2.1+25+20+18)

= 65.1

Hence ratio = 532 : 65.1 ≈ 8 : 1

164. b In the given table we can see that the costs that can be taken under the head "Materials" are : Cement, Steel, Bricks and Other building materials.

The estimated cost of these heads in 1990

= 80 + 45 + 12 + 18 = 155

The estimated cost of these heads in 1991

= 75 + 60 + 16 + 21 = 172

Since the cost of material rises by 5%, or would rise by 0.05X (155 + 172) = Rs.16.35 lakhs.

165. b Till 1990, actual amount spent = Rs.725.5 lakhs

Expenditure for 1991 as estimated = 209.5 lakhs.

$$\text{Required percentage increase} = \frac{209.5}{725.5} \times 100$$

= 28.89%.

166. a Total estimate = Rs. 725.5 lakh;

Estimate of contingencies = (1 + 15 + 4.2 + 5)

= Rs.25.2 lakh.

Now as the estimate of contingencies is doubled, it increases by Rs.25.2 lakhs.

Hence, the percentage increase in the total estimate is $\left(\frac{25.2}{725.5}\right) \times 100 = 3.47\%$.

For questions 167 to 171:

Since 40% of the students were females, i.e., 32 students. Total number of students was 80 and total number of male students was 48. Since half of the students were either excellent or good, (number of average students) = (number of good students + number of excellent students) = 40, number of excellent students = 40 – 30 = 10.

As 1/3rd of male students were average, total number of male students that were average = $\left(\frac{1}{3} \times 48\right)$ = 16 and hence, total number of male students that were good = (48 – 16 – 10) = 22.

Based on the above revelations, the following table can be drawn:

	Performance			Total
	Average	Good	Excellent	
Male	16	22	10	48
Female	24	8	0	32
Total	40	30	10	80

167. a Number of students who were both female and excellent = 0.

168. c Number of students who were both male and good = 22.

169. d Ratio of male to female among average students = 16 : 24 = 2 : 3.

170. b Proportion of female students who were good = $\left(\frac{8}{32}\right)$ = 0.25.

171. b Proportion of good students who are male = $\left(\frac{22}{30}\right)$ = 0.73.

For questions 172 to 175:

From the data that is given we can find the following data: (the explanation of how the following values were arrived, is given after the table).

Item	1984-85	1985-86
Food (Percentage)	22%	23%
Food (Value)	4928	5934
Manufactured Articles	11648	11352
Raw Material	5824	8514
Total Value of Exports in Crore of Rs.	22400	25800

172. d Food related exports in 1985-86 = 0.23 x 25800 = 5934.

So food related exports in 1984-95 = (5934 – 1006) = 4928.

Hence, percentage of food related exports in 1984 – 85 = $\frac{4928}{22400} \times 100$ = 22%.

173. b In 1984-85, Value of Manufactured articles & Raw materials exports = (22400 – 4928) = Rs.17472 crores.

Since Export of manufactured goods is twice that of raw materials, Rs.17472 has to be divided in the ratio 2:1.

Therefore, export of manufactured goods = Rs.11648 crores and Raw materials = Rs.5824 crores.

Hence, the difference between raw material and food = (5824 – 4928) = Rs.896 crores.

174. d In 1985-86, the combined percentage of Manufactured articles and Raw materials = 77% and this is in the ratio 4 : 3.

Hence, percentage of Manufactured articles export

is 44% and that of Raw materials export is 33%.

Hence, value of manufactured = 0.44 × 25800

= Rs.11352 crores

and the value of Raw materials = Rs.8514 crores.

Hence, percentage difference between the value

of Raw materials between 1984-85 and 1985-86

= $\left[\frac{(8514 - 5824)}{8514}\right] \times 100 = 31.6\%$.

175. a The change in the value of exports from 1984-85 to 1985-86 = (11648 – 11352) = Rs.296 crores.

176. c Bangladesh has highest drinking water facility and hence can not be dominated by any country.

Similarly Philippines has highest sanitation facilities and hence cannot be dominated.

177. b Statement A > Statement B only if statement A has higher percentage in total coverage for both drinking water and sanitation facilities taken independently and not as a total of the two facilities.

Thus, only statement B and statement D are

India > China

(81 > 67 and 29 > 24)

India > Nepal

(81 > 63 and 29 > 18)

Also China > Nepal (67 > 63 and 24 > 18)

178. c Let the urban population be x and rural population be y.

From the sanitation column, we have

$0.7x + 0.14y = 0.29(x + y)$

$0.41x = 0.15y$

$\therefore \quad x = \frac{15}{41}y$

∴ Percentage of rural population

$$= \frac{y}{x+y} \times 100$$

$$= \frac{y}{\frac{15}{41}y + y} \times 100$$

$$= \frac{41}{56} \times 100$$

$$= 73.2\%$$

179. a In the same way as the previous questions, we can find percentage of rural population for Philippines, Indonesia and China.

P	50%
I	66.66%
C	79.8%

Thus, P < I < C

180. d India is not on coverage frontier because

(i) it is below Bangladesh and Philippines for drinking water.

(ii) for sanitation facilities it is below Philippines, Sri Lanka, Indonesia and Pakistan.

For questions 181 and 182:

The disparity for the coverage of rural sector is as follows.

	Rural sector	Urban sector
I	65	15
B	52	20
C	49	23
P	47	5
P	20	4
I	22	6
S	–5	20
N	51	30

Note: Disparity = (Percentage denoting drinking facilities coverage – Percentage denoting sanitation coverage),

For example, rural sector of India = 79 – 14= 65%

Thus, as it can be seen from the table, in rural sector the country with most disparity is India (79 – 14) = 65%.

And the country with least disparity in urban sector is Philippines (92 – 88) = 4%

181. a

182. c

183. a FRG + CZE = 43.01 and US Total = 42.83

Hence, difference in time = 43.01 – 42.83 = 0.18

184. b The first two rankers of final score are 8905 and 8897.

The third ranker is carrying a score of 8880. So he needs to score 8881 to get a bronze, whereas his sum is 582 + 3003 = 3585.

Least score required = 8881 – 3585 = 5296

185. d Let the positive weights given to a competitor in High Jump, Pole Vault and Long Jump be x, y and z respectively. Therefore, x + y + z = Score-2

In long jump event, Michael Smith must have out-jumped all those competitors (excluding Daley Thompson) who had scored more than or equal to Michael Smith in each of High Jump and Pole Vault but with consolidated Score-2 of less than the consolidated Score-2 of Michael Smith.

The four competitors whom Michael Smith must have out-jumped in the long jump event are Torsten Voss, Jurgen Hingsen, Grigory Degtyarov and Steve Fritz.

186. c

	Cement	Limestone	Power	Wages
93 - 94	100	20	25	15
02 - 03	104	21	27	15.8

$$\text{So percentage profit} = \frac{104 - (21 + 27 + 15.8)}{104} \times 100$$

$$= \frac{40.2}{104} \times 100 = 38.65\%$$

187. b

	Steel	Power	Wages	Iron Ore
93 – 94	100	30	10	25
02 – 03	105.5	32.4	10.53	26.5

So percentage profit

$$= \frac{105.5 - (32.4 + 10.53 + 26.5)}{105.5} \times 100 = 34.18\%$$

188. a You only need to see the particular row in the table for the given options and for Power, it experienced continuous rise.

189. d Again for timber, wages experienced declined only once for the given period.

190. b There are 32 nations in all the four lists which have lower birth rates than Philippines. So they are ranked higher than it. Now, three nations namely Philippines, Thailand and Colombia have identical birth rates and death rates (34 and 10 respectively). Hence, they are ranked 33rd in the consolidated list.

191. a The rank of Spain is 17th overall, tied alongwith Yugoslavia. So the next country will be ranked 19th in the list. Taiwan is ranked 28th in the list. Hence, there will be (28 – 19) = 9 countries between Taiwan and Spain.

192. d In the consolidated list, there are 36 countries whose birth rate doesn't exceed 35. Now looking at the countries with birth rate of 36, we see that on the basis of lower death rates, Venezuela is placed at 37th position.

193. a There are 9 countries in Asia that are ranked lower than every country of South America, namely Iran, Vietnam, Korea(DPRK), Pakistan, Nepal, Bangladesh, Syria, Iraq and Afghanistan. Out of these nations, only Afghanistan is ranked below all the countries from Africa. Remaining 8 countries satisfy the given condition.

194. d The possible combinations when the respondents are aged less than 40 years is minimum can be:

(i) No children – 1 male(aged 38) and atleast 1 female (aged 34)

(ii) 1 child – 1 male(aged 32) and atleast 1 female (aged 35)

(iii) 2 children – at least 1 male(aged 21) and at least 1 female (aged 37)

(iv) 3 children – 2 males(aged 32 and 33) and 1 female (aged 27)

i.e. there is at least 9 such respondents.

$$\text{Required percentage} = \frac{9}{30} \times 100 = 30\%.$$

195. c The possible combinations when the respondents are aged more than 35 years is maximum can be:

(i) No children – 1 male(aged 38) and atmost 4 females

(ii) 1 children – 0 male and at most 7 female

(iii) 2 children – at most 7 males and 3 females

(iv) 3 children – 0 male and 1 female(aged 40)

i.e. there can be at most 23 such respondents.

$$\text{Required percentage} = \frac{23}{30} \times 100 = 76.67\%$$

196. c The possible combinations when the respondents are aged between 35 and 40 years(both inclusive) is minimum can be:

(i) No children – 1 male(aged 38) and 0 female

(ii) 1 children – 0 male and at least 1 female (aged 35)

(iii) 2 children – 0 males and at least 1 female (aged 37)

(iv) 3 children – 0 male and 1 female (aged 40)

i.e. there can be at least 4 such respondents.

$$\text{Required percentage} = \frac{4}{30} \times 100 = 13.33\%.$$

197. c In case of Products, percentage of spam emails is increasing but at decreasing rate, from Sep 2002 to Dec 2002 products increased by $\frac{7-3}{3} \approx 133\%$ and in Mar 2003 about $\frac{7-4}{7} \approx 43\%$ and in Jun 2003 $\left(\frac{11-10}{10} \approx 10\%\right)$.

198. a Since percentage of spam is Dec 2002 is higher than June 2003, and the number of total e-mails received is higher, hence number received in Dec 2002 is higher.

199. d Cannot be determined as in Sept 2002 percentage is lower as compared to March 2003, however the total number of emails received in Sept 2003 is higher than that in March 2002. Thus, we cannot say anything.

200. b Number of children with age $\leq$ 9 years = 45

Number of children with height $\leq$ 135 cm = 48

Therefore, the number of children of age 9 years or less whose height does not exceed 135 cm will be the common of the two (age $\leq$ 9 years and height $\leq$ 135 cm) = minimum(45, 48) = 45

201. a Number of children aged more than

10 years = 100 – 60 = 40

Number of children taller than

150 cm = 100 – 75 = 25

Number of children with weight more than

48 kg = 100 – 91 = 9

These 9 children are surely included in the 25 children taller than 150 cm and more than 10 years of age because of the assumption given. Thus, 25 – 9 = 16 children satisfy the given condition.

202. c Number of children older than 6 years but not exceeding 12 years = 77 – 22 = 55

Number of children with weights not exceeding 38 kg = 33

These 33 children includes the 22 children with age not exceeding 6 years. Therefore, the remaining (33 – 22) = 11 comes from the 55 children of ages older than 6 years but not exceeding 12 years.

Therefore, 55 – 11 = 44 children satisfy the given condition.

203. a GPA of Preeti = 3.2

i.e., $\frac{F+D+x+D+y}{5} = 3.2$

$\Rightarrow$ $0 + 2 + x + 2 + y = 16$

$\Rightarrow$ $x + y = 12$

The only possible combination is A, A.

Hence, Preeti obtained A grade in Statistics.

204. d Total points scored by Tara = $2.4 \times 5 = 12$

She scored same grade in three of the subjects, so her score is of the form $3x + y + z = 12$

She cannot have scored 3 A's as her total points will exceed 12.

She can score 3 B's and 2 F's which will make her total points $3 \times 4 + 2 \times 0 = 12$.

She cannot score 3 C's as the points in remaining two will be $12 - 3 \times 3 = 3$ and only possible breakup is (3, 0). This will contradict the fact that she had same grade in only three courses.

For a similar reason, she cannot score 3 D's.

She cannot score 3 F's, because for the remaining two courses she has to amass 12 points which is possible if she score A in both – a contradiction.

Hence, Tara could have scored a B or F grade in Operations.

205. b GPA of Gowri is 3.8

i.e. $3 + 3 + 6 + x + 4 = 3.8 \times 5$

$16 + x = 19$

$x = 3$

So in Strategy, Gowri's grade is C.

Rahul's grade in strategy = $(4.2 \times 5) - 15 = 6$, i.e., A.

Fazal's grade in strategy = $(2.4 \times 5) - 8 = 4$, i.e., B.

Hence, Gowri's grade will be higher than that of Hari.

206. c As Fazal's GPA = 2.4

So $D + F + B + X + D = 2.4 \times 5$

$\Rightarrow$ $2 + 0 + 4 + X + 2 = 12$

$\Rightarrow$ $X = 4$

So his grade in Strategy is B.

So grade of Utkarsh in Marketing is also B.

So for Utkarsh, $Y + B + F + C + A = 3 \times 5$

$\Rightarrow$ $Y + 4 + 0 + 3 + 6 = 15$

$\Rightarrow$ $Y = 2$

So grade of Utkarsh in Finance = D.

For questions 207 to 210:

On day 3, there were 2 visitors from UK and 1 from USA. On the same day, the site was visited by 2 persons from University 4 and 1 from University 6. So University 4 is located in UK and University 6 is in USA.

Similar reasoning for day 2 gives us the conclusion that University 3 is located in Netherlands and University 8 is in India.

On day 1, the number of visitors from USA is 1 and that from University 6 is 1. University 6 is in USA (derived above), which implies no other university is in USA.

The number of visitors from India on day 1 is 1. Also, no visitor from University 8, which is in Idia has visited the site on day 1. This implies that one of University 1 and University 5 is in India and the other in Netherlands. A similar logic gives us that one of University 2 and University 6 is in UK and the other in Canada.

207. a

208. c

209. a

210. b

211. d Thailand and Japan (Maximum difference of 4 ranks $(5 - 1) = 4$.

212. a China (Maximum difference of 2 between 2 parameter's 2)

213. b Japan (Maximum difference of 4.)

214. d Japan and Malaysia (Inferring from question 46)

215. d

1	16
2	15
3	14
4	13
5	12
6	**11**
7	**10**
8	**9**

Winners after round two would be 1, 2, 3, 4, 5, 11, 10, 9 for 8 rounds respectively. As Lindsay is number two, she will play Venus Williams in quarter finals.

216. c Elena is at number 6 and Serena is at number 8.

If they lose, then table would be:

1	9
2	7
3	11
4	5

Maria is at number 1 and she will play the player at number 9. i.e., Nadia Petrova.

217. a

1	32
2	**31**
3	30
4	**29**
5	28
6	**27**
7	26
8	**25**
9	24
10	**23**
11	22
12	**21**
13	20
14	**19**
15	18
16	**17**

Matches in bold letters had upsets.

Then, from the table, winners would be:

1, 31, 3, 29, 5, 27, 7, 25, 9, 23, 11, 21, 13, 19, 15 and 17.

So for the next round, table would look like:

1	17
31	15
3	19
29	13
5	21
27	11
7	23
25	9

Since, there was no upset in the second round, so the table in the next round would look like:

1	**9**
15	7
3	11
13	5

We are given Maria is in the semi-finals. As we are not sure what is the result of other games, table for the next round can be drawn as follows:

1	5/13
7/15	3/11

Hence, Anastasia will play with Maria Sharapova.

218. c

1	8
2	7
3	6
4	5

In this case, Kim Clijster will either not reach semi-finals or she will play Maria in semi-finals.

Hence, she cannot play Maria in finals.

For questions 219 to 222: The given information can be tabulated as follows:

States	Firm A	Firm B	Firm C	Firm D
UP	49	82	80	55
Bihar	69	72	70	65
MP	72	63	72	65
Total	190	217	222	185

219. b As Truthful Ltd. has the highest market share, so Truthful Ltd. can be A or C.

From neutral statement, either B and C are Aggressive and Honest or A and D are Aggressive and Honest.

According to statement 1, B is Profitable. Then, A and D are Aggressive and Honest.

Then, Honest's total revenue cannot be more than that of Profitable. Hence, statement 2 is false.

220. c According to statement 1, Aggressive is B. Then, Honest has to be C (as given in the neutral statement).

Then, statement 2 is also true as Honest Ltd's. lowest revenue is from Bihar.

221. c B is Honest according to statement 1.

Atmost one statement can be true as both give Aggressive and Honest as firm B and firm B cannot have two names.

222. c Profitable can be either A or D. Then, Aggressive and Honest have to be B and C. Hence, Truthful is D or A. For both A and D, lowest revenue is from UP.

Hence, (c) is the correct option.

For questions 223 to 227:

223. c Let Dipan get x marks in paper II.

Dipan's average in PCB group = 98

Maths group = 95

S.S. group = 95.5

Vernacular group = 95

English group = $\left(\frac{96+x}{2}\right)$

Sum of all = 96 × 5

So $95.5 + 96 \times 3 + 48 + \frac{x}{2} = 96 \times 5$

$\Rightarrow \frac{x}{2} = 96 \times 2 - 95.5 - 48$

$x = 2(96.5 - 48) = 2 \times 48.5 = 97$

So (c) is the correct option.

224. a The only boy getting 95 in atleast one of the subjects of the group among all the groups is Dipan.

So (a) is the correct option.

225. a A group score of 100 in Social Science would have increased the scores as follows:

	Score Increase	Group Score	Final Score Increase	Final group Score
Pritam	22	11	$\frac{11}{5} = 2.2$	96.1
Joseph	9	4.5	$\frac{4.5}{5} = .9$	95.9
Tirna	21	10.5	$\frac{10.5}{5} = 2.1$	95.8
Agni	9	4.5	$\frac{4.5}{5} = .9$	95.2

So the order is Pritam > Joseph > Trina > Agni.

So option (a) is the correct choice.

226. d The student having atleast 95 in every group is Dipan, so the answer is Dipan, option (d).

227. e Let us increase the score in one of the subjects of the following candidates

	Least Scores	Contribution in net Score	Final Score
Ram	94 in group of 2	3 in 5 groups	96.1 + .6 = 96.7
Agni	82 in group of 2	9 in 5 groups	94.3 + 1.8 = 96.1
Pritam	83 in group of 2	8.5 in 5 groups	93.9 + 1.7 = 95.6
Ayesha	93 in group of 2	3.5 in 5 groups	96.2 + .7 = 96.9
Dipan	95 in group of 1	5 in 5 groups	96 + 1 = 97.0

So, Dipan will end with a highest total.

So the answer is option (e).

228. a The diet should contain 10% minerals and only two ingredient contain 10% minerals namely O and Q.

Hence, only by mixing O and Q, a diet with 10% minerals can be formed.

Hence, there is only one way.

229. d None of the choices among (a), (b) and (c) can be used to form the diet with 10% fat and atleast 30% protein. For Q and S to form the diet with 10% fat and at least 30% protein, let us suppose that they are mixed in x : y ration. Then,

$$\frac{x(50)+y(0)}{x+y} = 10$$

$$\Rightarrow \quad x : y = 1 : 4$$

$$\text{Cost per unit} = \frac{1(200)+4(100)}{5} = \text{Rs.}120$$

Similarly, for R and S, cost per unit = Rs. 200

$\therefore$ Cost per unit is lowest for Q and S.

230. e To make a diet with P, Q and S having atleast 60% carbohydrates, the proportion of P should be the maximum and the other two should be minimum to get the lowest per unit cost. Options (b) and (e) satisfies this but the lowest cost per unit can be achieved when P, Q and S are mixed in the proportion 4 : 1 : 1.

231. e As the ingredients are mixed in equal amounts, so we can take the average of the constituent percentage of the elements used.

Only option (e) satisfies all the conditions.

For questions 232 to 235:

Looking at the values in the table one can easily conclude that the costs which are directly proportional to the change in volume of proportion are 'Material', 'Labour' and 'Operating cost of machines'. Rest of the costs are all fixed costs. If 'x' is the number of units produced in 2007, then the total cost of production would be

C = 9600 (Fixed cost) + 100x (Variable cost),

Variable cost = 100x because as the number of units for 2006 is 1200 and variable cost for that is 120000 i.e. 100 times the number of units.

232. b Total cost = 9600 + 100 × 1400 = 149600

$$\text{Cost per unit} = \frac{149600}{1400} = 107 \text{ (approx.)}$$

233. c To avoid any loss the total selling price should be equal to the total cost price. If 'x' units are produced and selling price of each unit is 125 Rs.

Therefore, $125x = 9600 + 100x$

$$25x = 9600$$

$$\Rightarrow \quad x = 384$$

Hence, 384 units should be produced.

234. e Here, fixed cost is Rs.9600 and the variable cost is Rs.100x, where x is number of units produced. Hence, profit is maximum if x is maximum. Therefore, 2000 units will give maximum profit.

235. a If the company sells a maximum of 1400 units, the selling price is fixed at Rs. 125 per unit. If more than 1400 units are sold, the selling price is reduced to Rs. 120 per unit. The company cannot sell more than 1700 units.

To earn maximum profit at a unit selling price of Rs. 125, the company must sell 1400 units. The maximum profit earned, denoted by P_0, is calculated as below:

$$\text{Profit} = (\text{Selling Price}) - (\text{Cost Price})$$

$$P_0 = 125 \times 1400 - (9600 + 100 \times 1400)$$

$$= \text{Rs. } 25400$$

Now if the company sells an x number of units ($x > 1400$) then the profit earned will be:

$$P_x = 120 \times x - (9600 + 100 \times x)$$

$$= 20 \times x - 9600$$

The minimum value of x for which P_x will be more than P_0 must satisfy the following inequality:

$$20 \times x - 9600 > 25400$$

$$\Rightarrow x > 1750$$

As only a maximum of 1700 units can be sold, P_x will never be more than P_0. Hence the maximum profit that can be earned is Rs. 25400 only.

Hence (a) is correct.

For questions 236 to 239:

From the given information the following table can be formed:

	M	F	V	NV	Total
Class 12	48	32	32	48	**80**
Class 11	44	36	40	40	**80**
Secondary Section	288	352	352	288	**640**
Total	**380**	**420**	**424**		**800**

236. b From the above table

Percentage of male students in the secondary section $= \frac{288}{640} \times 100 = 45\%$

237. e From the above table

Male vegetarians $= \frac{25}{100} \times 32 = 8$

Female vegetarians = 32 – 8 = 24

Male non-vegetarians = 48 – 8 = 40

So, their difference is 40 – 24 = 16.

238. a Percentage of vegetarian students in Class 12

$$= \frac{32}{80} \times 100 = 40\%$$

239. * From the main table

	M	F	V	Male Veg	Female Veg	Total
Class 12	48	32	32			80
Class 11	44	36	40			80
Secondary Section	288	352	352	320	320	640
Total	380	420	424			800

***This question is wrong** because the number of Male vegetarian cannot be greater than 288.

240. c The cost of angioplasty, hip replacement and a knee replacement (in US Dollars '000) in the given countries is as follows.

	India	Thailand	Malaysia	Singapore	USA
Angioplasty	11 + 5 = 16	13 + 5 = 18	11 + 6 = 17	13 + 4 = 17	57
Hip replacement	9 + 7 = 16	12 + 5 = 17	10 + 8 = 18	12 + 5 = 17	43
Knee replacement	8.5 + 9 = 17.5	10 + 6 = 16	8 + 4 = 12	13 + 4 = 17	40
Total cost	49.5	51	47	51	140

The cheapest is in Malaysia.

241.a

	India	Thailand	Malaysia	Singapore
Knee replacement	8.5 + 9 = 17.5	10 + 6 = 16	8 + 4 = 12	13 + 4 = 17

Clearly, India has the highest cost for knee replacement surgery.

242. d In India, total cost in US$ = $3000 + 5000 + \frac{1500}{32.89}$ (transportation cost) = 8456.06

In Thailand, total cost in US$ = 4500 + 6000 = 10,500

Difference in amount is 10,500 – 8456.06 = US$ 2044 ≈ 67,500 Bahts

243. b In India, total cost for spirial fusion in US$

$$= \frac{5500 \times 40.928}{35} = 6431.5$$

In Singapore, total cost for spirial fusion in US$ = 9000

Difference (in US$) is 9000 – 6431.5 = 2568.5

≈ 2500

244. c Average gross pay of HR department before transfer

$$= \text{Rs. } 5000 \times 1.7$$

$$= \text{Rs. } 8500$$

Basic pay of the transferred person = Rs. 8000

New allowance of the transferred person = (80 + 10) = 90% of the basic pay

New Gross pay of the transferred person

$$= \text{Rs. } 8000 \times 1.9$$

$$= \text{Rs. } 15{,}200$$

New average gross pay of HR dept.

$$= \text{Rs. } 8500 + \left(\frac{15200 - 8500}{6}\right) = \text{Rs. } (8500 + 1116)$$

Percentage change $= \frac{1116}{8500} \times 100 \approx 13\%$

245. c Since increase in average age of the Finance department. is one year, the age of the person moving from Marketing to Finance is more than that moving from Finance to Marketing, by 1 × 20 = 20 years.

Hence, due to this transfer, cumulative age of Marketing department has gone down by 20 yrs. But since the average age of Marketing department remaining unchanged, the person moving from Marketing to HR has age = (Avg. age of Marketing) – 20 = 15 years.

New average age of HR dept.

$$= \frac{(5\times 45)+(1\times 15)}{5+1} = 40 \text{ yrs.}$$

246. b Total basic pay of HR = 5 × 5000 (existing) + 2 × 6000 (from Maintenance) + 1 × 8000 (from Marketing) = Rs. 45,000

$$\text{New average} = \frac{45{,}000}{8} = \text{Rs. } 5{,}625$$

$$\text{Percentage change} = \frac{625}{5000}\times 100 = 12.5\%.$$

247. c The total production of Charyana in 1991 = 925

The percentage contribution

$$= \frac{925}{5600}\times 100 = 16.52$$

The total production of Charyana in 1992 = 1165

The percentage contribution

$$= \frac{1156}{6300}\times 100 = 18.49$$

The total production of Charyana in1993 = 1300

The percentage contribution

$$= \frac{1300}{6700}\times 100 = 19.40$$

248. d None of the three crops showed a decline in production for two consecutive years in Charyana.

249. c Bajra showed a decline in production in Charyana in 1992 despite showing an increase in production for two consecutive years in Khetistan.

For questions 250 to 253:

Let's assume that the grade points awarded to Himanshu in English, Vijay in Math and Saral in Science are x, y and z respectively.

The sum of the five grade points for:

Abhishek = 39

Saral = 35 + z

Himanshu = 36 + x

Puneet = 44

Vijay = 30 + y

Sanjay = 42

Since Abhishek and Vijay get equal GPAs,

39 = 30 + y

$\Rightarrow$ y = 9

$\Rightarrow$ Y lies in the range 81-90.

Since the sum of the GPAs of Saral and Puneet is equal to the sum of the GPAs of Himanshu and Sanjay,

(35 + z) + 44 = (36 + x) + 42

$\Rightarrow$ x = z + 1

Since the GPA obtained by Himanshu is the highest, x cannot be less than 9. (Otherwise Puneet's GPA would be either equal to or higher than Himanshu's GPA.)

If x = 10 then z = x – 1 = 9. In this case the GPAs of Saral and Puneet would become equal (which violates the condition given in the question).

So x = 9, z = 8.

$\Rightarrow$ X lies in the range 81-90, Z lies in the range 71 – 80.

Sum of the marks obtained by the six students in:

English = 374 + X

Hindi = 470

Math = 445 + Y

Science = 391 + Z

S.Sc. = 462

Since the total marks in Science are definitely less than the total marks in Math, the total marks in Science should be more than the total marks in Hindi.

So 391 + Z > 470

$\Rightarrow$ Z > 79

$\Rightarrow$ Z = 80

The total marks obtained by:

Abhishek = 363

Saral = 422

Himanshu = 333 + X

Puneet = 421

Vijay = 283 + Y

Sanjay = 400

Since the total marks obtained by Himanshu are not the highest, his total should be less than Saral's total.

So $333 + X < 422$

$\Rightarrow X < 89$

$\Rightarrow$ X lies in the range 81-88.

The final table looks like this:

	English	Hindi	Math	Science	S.Sc.
Abhishek	56	67	92	97	51
Saral	88	79	87	80	88
Himanshu	81-88	81	82	89	81
Puneet	83	90	91	78	79
Vijay	74	65	81-90	67	77
Sanjay	73	88	93	60	86

250. c

251. b

252. a

253. c

254. c The total number of employees who were appraised in January was 71 + 67 + 97 i.e. 235. These were the employees who were appraised on at least one performance area.

The total number of employees who were appraised in July was 30 + 22 + 29 i.e. 81. These were the employees who were appraised on at least two performance areas.

The number of employees who were appraised on exactly one performance area is 235 – 81 i.e. 154.

255. a The number of employees who were not appraised on Individual Performance in January was 67 + 97 i.e. 164. The employees who were appraised on Individual Performance in July and November were among these 164 employees only. So the number of employees who were not appraised on Individual Performance in 2010 was 164 – (30 + 9) = 125.

256. c We can say that the total fare of:

Delhi-Bhopal + Bhopal-Mumbai

= Mumbai-Delhi + Rs.125.

Hence, the variable fare of:

Delhi-Bhopal + Bhopal-Mumbai

= Mumbai-Delhi + Rs.65.

This is possible only if Mumbai-Delhi falls in the distance range 1001 – 1800 km (Rs. 340). One of Delhi-Bhopal and Bhopal-Mumbai falls in the range 151 – 500 km (Rs. 155) and the other falls in the range 501 – 1000 km (Rs. 250).

257. c Yatri Kumar must have travelled in a Passenger train.

First day: Fare in the Sleeper Class for the distance range 1001 – 1800 km

= Rs. 160 + Rs. 60 = Rs. 220.

Second day: Fare in the Air Conditioned Class for the distance range $\leq$150 km

= Rs. 120 + Rs. 100 = Rs. 220.

For questions 258 to 260 :

Given that the increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and that the average number of applicants in the four given streams in 2008 is 400000.

Therefore, the increase in the number of applicants in the Engineering stream in 2008 will be 70000 + 20000 = 90000.

Thus, the corresponding increase in the number of applicants in the Medical Science stream in 2008 will be 90000 – 69000 = 21000 and subsequently the increase in the number of applicants in the Arts stream will be 21000 + 59000 = 80000.

258. d So, the values of C, E and F will be

(70000 – 21000 = 49000), (80000 – 90000

= – 10000) and (80000 – 70000) respectively.

So, the options (a), (b) and (c) are true.

For questions 259 and 260:

Let the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2007 be 'x', 'y', 'z' and 'w' respectively.

Therefore, the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2008 will be (x + 90000), (y + 21000), (z + 70000) and (w + 80000) respectively.

So, $x + y + z + w + 261000 = 400000 \times 4 = 1600000$.

Or, $x + y + z + w = 1339000$.

259. a

260. b So, Required percentage

$$= \left(\frac{80000}{1339000}\right) \times 100 = 5.97\ \% \approx 6\%$$

261. c Let the GDP of Belgium be y Euros.

$$\therefore \quad y \times \frac{4.8}{100} \times 1.5 = x \Rightarrow y = \frac{100}{7.2}x$$

Hence, the debt (in Euros) of Belgium

$$= \frac{100.8}{100} \times \frac{100}{7.2}x = 14x.$$

262. c Two countries, viz. Denmark and Finland, were rated AAA.

263. a Let the GDP (in Euros) of Italy be x.

Therefore, the GDP (in Euros) of Finland = 1.5x.

The fiscal-deficit of:

Italy = 0.051x

Finland = 0.034 × 1.5x = 0.051x.

Hence, the required percentage = 0.

For questions 264 to 267 :

	Total Capacity (n MW units)	Units Sold (In MW units)
A	8,500	7,565
B	6,250	5,437.50
C	10,000	9,000
D	8,500	7,225
E	9,500	7,600

264. d Total capacity of India = $6,250 \times \frac{100}{12.5}$

= 50,000 MW units

Thermal capacity of India = 95% of total capacity

= 47,500 MW units

Total capacity of these five power plants

= 42,750 MW units

Required percentage = $\frac{42,750}{47,500} \times 100$ = 90%.

265. b The correct order is C > E > A > D > B

266. d Profitability can be compared by comparing the ratio of total revenue to total cost.

$$\text{Profitability for A} = \frac{(89\% \text{ of TC}) \times 3.4}{(93\% \text{ of TC}) \times 2.1}$$

$$= \frac{89 \times 3.4}{93 \times 2.1}$$

= 1.549.

where TC is the total capacity of that power plant.

Same values of others are

B → 1.406, C → 1.4108

D → 1.2617, E → 1.257

So, B has the third highest ratio and hence third highest profitability.

267. b Only statement 'b' is true.

LEVEL - 3

268. c From table 3 it can be seen that the highest percentage of sales to stock is 74% for the Region 4 and colour Brown.

269. b From Table 4 it can be seen that in region 1, the maximum percentage of saris were sold of Brown colour viz.22% and hence this is the most popular colour in this region.

270. d This can be answered from the fifth table. It can be seen that Region 1 has sold the maximum percentage of magenta saris out of its total magenta saris sold (viz.44%)

271. b This can be answered from the fourth table. It can be seen that Region 6 has sold the least percentage of green saris out of its total sale (viz.14%)

272. a This can be answered from the fifth table. It can be seen that the percentage of blue saris sold is maximum for Region 2 viz. (33%)

273. a

Year	Consumption of chemical fertilizers	Gross cropped area	Ratio
84-85	(3.68+1.21+0.62) = 5.51	173.1	0.032
85-86	(4.07+1.32+0.67) = 6.60	177	0.037
86-87	(4.22+1.44+0.73) = 6.39	172.6	0.037
87-88	(5.20+1.73+0.78) = 7.71	180.4	0.043

Hence the ratio is lowest for 84-85.

274. a It can be seen that in 88-89, area cropped shows a decline for 3 of the crops viz.wheat, jowar and bajra. This is the maximum number of crops for any year.

275. d The amount area brought under irrigation for Major and Medium in 86-87

= (24 – 23.2) = 0.8

The amount area brought under irrigation for Minor in 86-87

= (34.2 – 32.77) = 1.43

Hence total area brought under irrigation in 86-87

= 0.8+1.43 = 2.23 million hectares.

276. d It can be seen that only in the year 1987-88, the area under minor irrigated area has decreased (from 34.2 to 34). Hence it is obvious that this area should have been transferred to major and medium irrigated areas.

For questions 277 to 280:

L = London, Paris = P, New York= NY, Beijing = B

In round III, one of the two cities, either London or Paris will get 38 votes and the other 37. Further:

(1) The persons representing London, Paris, Beijing and New York can not vote as long as their own cities are in contention. In round I, New York gets eliminated and hence the representative from NY becomes eligible for voting in the II round hence increasing the total votes by 1. This means the total votes in the first round must be 83 – 1 = 82.

(2) After round II, the representative from Beijing votes in the III round. This should have increased the number of total votes by 1 and the total votes must have become 83 + 1 = 84.

We are given that the total votes in round III are 75 only. We conclude that 84 – 75 = 9 people who voted in round I and II have become ineligible for voting in round III.

(3) 9 people who have voted in round I and II become ineligible for voting in round III. The reason of their ineligibility is that till round I and II, they have already voted for two different cities which are not available for contention in round III. All of these 9 voters are those who voted for NY in round I and then voted for Beijing in round II.

(4) Beijing's vote in round II is 21. This includes 9 votes from people who voted for NY in the first round. So 21 – 9 = 12 people voted for Beijing in both round I and II.

(5) We are given that 75% of the people who voted for Beijing in round I, voted again for Beijing in round II as well. So, 16 people must have voted for Beijing in round I.

(6) In round I we have:

$$82 = L + P + B + NY$$

Or

$$82 = 30 + P + 16 + 12$$

Giving P = 24

(7) In round II, we have:

$$83 = L + 32 + 21, \text{ giving } L = 30$$

(8) NY had 12 votes in round I. 9 of these votes went to B(see point 2 , again). The rest 3 went to P.

(9) 16 votes for B in round I. 12 of them still vote for B. The rest 4 voted for either L or P. L has the same number of votes in both the rounds I and II. This means in round II, these 4 votes must have gone to Paris only.

(10) The representative from NY did not vote in round I but has voted in round II. As L has the same people voting for it (30 votes in both the rounds I and II) and we know the exact break up of B in II. This NY-representative vote must go to Paris only. Further, in order to avoid ineligibility, this NY rep must vote for Paris only in round III also.

(11) Paris (in round II) break up is:

32 = 24 (from round I, who voted for Paris)

+ 4 (out of the 16, who voted for Beijing in round I)

+ 3(out of 12, who voted for NY in round I)

+ 1 (NY -Rep)

(12) Beijing gets eliminated in round II. So the rep of Beijing can vote in round III.

(13) 12 People (out of 21) who voted for Beijing in round II are still eligible for vote in round III.

(14) 50% of people who voted for Beijing in I (i.e. 8 People) voted for Paris in round III. These 8 People include 4 of those who voted for Paris in round II also. Therefore 4(out of 12 who voted for Beijing in round II and are still eligible for vote in round III) people have voted for Paris in round III.

(15) This implies that the rest 8(out of 12 who voted for Beijing in round II and are still eligible for vote in round III) can vote for London only. This makes London's vote = 30+ 8 or 38 in round III. Which implies that Paris got 37 votes.

(16) The Beijing Rep who is eligible to vote in round III must have voted for Paris only.

The following table sums up the Vote Pattern:

Round	Total Votes	London (L)	Paris(P)	Beijing (B)	New York (NY)
I	82	**30**	24	16	**12**
II	**83**	30	**32** = (24 + 4 + 3 + 1 of NY-rep)	**21** (12 + 9)	X
III	**75**	38 = (30 + 8)	37= (32 + 4 + 1 of B-rep)	X	X

(The data shown in **Bold** was already provided in the problem. The other data is deduced from the solution.)

277. d Required percentage

$$= \frac{9}{12} \times 100 = 75\%$$

278. d As seen from the table, Paris got 24 votes.

279. d Required percentage

$$= \frac{8}{12} \times 100 = 66.67\%$$

280. a Based on the table, IOC members from New York must have voted for Paris in Round II.

281. b Since Bhama got calls from all colleges, she has to score marks in each section equal to at least the maximum of the cut-offs across colleges which means 45, 45, 46 & 45 in section A, B, C & D respectively. This makes her total to be 181 with which she will clear the overall cut-offs of all the institutes.

282. c Since we have to minimise the marks in a particular section, we will have to maximise the marks in other 3 sections. Let us assume that marks obtained in each of the three sections in which we are going to maximize the score, is equal to 50. Now, the lowest overall cut-off is 171 & second lowest is 175. Hence, Charlie must have scored at least 175 – (50 + 50 + 50) = 25 marks in the remaining section.

Let us confirm whether he can clear sectional cut-offs also with such a distribution. On seeing the sectional cut-offs, we conclude that they can be cleared with 50 marks each in section A, B & C and 25 marks in section D, which may enable Charlie to clear the sectional cut-off of section D for college 1, 2, 3 or 5. Hence, 25 is the correct answer.

283. c Since we have to maximize Aditya's marks, let us take the base values of 50 marks in each section and try to reduce that by minimum values to ensure he doesn't get any call. We notice that by reducing the marks obtained in section C to 41, we ensure colleges 1, 2, 3 & 5 are ruled out. Now for colleges 4 & 6, reducing the marks obtained in section D to 43, ensures these colleges are also ruled out. Please note that we are reducing the score to 1 less than the minimum cut-off across all colleges for that particular section.

In the other two sections A and B, Aditya may score 50 each. So the maximum possible aggregate marks = 50 + 50 + 41 + 43 = 184.