

General Knowledge Sample Paper - 12

SECTION-III : GENERAL TEST

1. 'Hire and Fire' is the policy of :
(a) Capitalism
(b) Socialism
(c) Mixed Economy
(d) Traditional Economy
2. The latest volume of foodgrains to be given per family as determined under 'Annapurna Scheme' is :
(a) 35 kg (b) 20 kg
(c) 10 kg (d) 40 kg
3. The Nobel Prize for Economics was instituted by :
(a) Alfred Nobel
(b) Sweden's central bank
(c) The Nobel Committee
(d) World Bank
4. Which of the following items is under the State List ?
(a) Agriculture
(b) Criminal Law
(c) Education
(d) Defence
5. In the Constitution of India, which Articles mentions about the establishment of Welfare State in India?
(a) 99 (b) 39
(c) 59 (d) 69
6. Which of the following writs can lie only against a person holding a public office ?
(a) Habeas corpus
(b) Mandamus
(c) Prohibition
(d) Certiorari
7. Who among the following was the first Viceroy of India ?
(a) Lord Cornwallis
(b) Pitt
(c) Lord Canning
(d) Robert Clive
8. Sultan a Razia Begum was the daughter of :
(a) Balban
(b) Qutub-ud-din Aibak
(c) Iltutmish
(d) Rukn-ud-din
9. The Central Leather Research Institute (CLRI) is located at :
(a) Pune (b) Guwahati
(c) Chennai (d) Srinagar
10. The tallest plant in the world is :
(a) Eucalyptus
(b) Pterocarpus
(c) Polyalthia
(d) Tectona
11. The only bird that flies backward is :
(a) Sparrow
(b) Koel
(c) Siberian Crane
(d) Humming bird
12. Which of the following is an iron ore?
(a) Bauxite (b) Magnetite
(c) Lignite (d) Nitrite
13. Which one of the following is an extinct animal ?
(a) Passenger pigeon
(b) Mountain quail
(c) Pink-headed duck
(d) Ibis
14. From which one of the following is quinine extracted?
(a) Sarpagandha (b) Opium
(c) Cinchona (d) Datura
15. Which vitamin deficiency causes the disease pernicious anaemia?
(a) Vitamin B₃
(b) Vitamin B₁₂
(c) Vitamin B₆
(d) Vitamin C
16. Magnifying Glass is basically a:
(a) Plano-concave lens
(b) Concave lens
(c) Convex lens
(d) Cylindrical lens
17. The pitch of sound depends on its :
(a) Frequency (b) Intensity
(c) Velocity (d) Amplitude
18. Bakelite is a copolymer of Phenol and:
(a) Formaldehyde
(b) Acetaldehyde
(c) Benzaldehyde
(d) Cinnaldehyde
19. Which of the following is a conductor of electricity ?
(a) Rubber (b) Pure water
(c) Salt water (d) Benzene
- (c) Convex lens
(d) Cylindrical lens
17. The pitch of sound depends on its :
(a) Frequency (b) Intensity
(c) Velocity (d) Amplitude
18. Bakelite is a copolymer of Phenol and:
(a) Formaldehyde
(b) Acetaldehyde
(c) Benzaldehyde
(d) Cinnaldehyde
19. Which of the following is a conductor of electricity ?
(a) Rubber (b) Pure water
(c) Salt water (d) Benzene
20. Which one of the following contributes largely to the 'green house effect'?
(a) Ozone
(b) Carbon monoxide
(c) Carbon dioxide
(d) Water vapour
21. Who was the first musician to be felicitated with 'Bharat Ratna'?
(a) Lata Mangeshkar
(b) M.S. Subbulakshmi
(c) Pt. Ravi Shankar
(d) Pt. Bhimsen Joshi
22. Who of the following is a famous Tabla player ?
(a) Zakir Hussain
(b) Vikku Vinayakram
(c) Pt. V.G. Jog
(d) Palghat Mani Iyer
23. Who discovered North Pole ?
(a) Robert Peay
(b) Amundsen
(c) Tasman
(d) John Cabot
24. The letter 'G' used in '2G Spectrum' stands for :
(a) Governance (b) Global
(c) Generation (d) Google
25. The oldest Indian woman to scale Mt. Everest is :
(a) Bachendri Pal
(b) Premlata Agarwal
(c) Prabha Kumari
(d) Tine Mena

Directions (Q. 26-29): Choose the related word/letters/number from the given alternatives.

26. Eccrinology : Secretions :: Cardiology : ?

- (a) Insects (b) Soil
(c) Algae (d) Heart

27. CFI: XUR :: GJM : ?

- (a) TRO (b) TQN
(c) WQT (d) QWT

28. BFJ: KOS :: KOS : ?

- (a) TXC (b) SXB
(c) TXB (d) SXC

29. 24 : 36 :: 52 : ?

- (a) 19 (b) 70
(c) 49 (d) 78

Directions (Q. 30-33): Choose the odd word/letters/number/number pair from the given alternatives.

30. (a) Body (b) Nose
(c) Eyes (d) Lips
31. (a) BYCX (b) DWEV
(c) GUHS (d) IRJQ
32. (a) 13 (b) 17
(c) 19 (d) 21
33. (a) 25673 (b) 34664
(c) 42763 (d) 25556

Directions (Q. 34-36): A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

34. DJO, EKP, FLQ, GMR, ?
(a) HOS (b) HNS
(c) INS (d) DEF
35. DEF, ?, OPQ, VWX
(a) HIJ (b) GHI
(c) IJK (d) IPV
36. 4, 18, 48, ?, 180
(a) 80 (b) 100
(c) 105 (d) 125

37. In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from the commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:

- (I) Corruption has complete establishment in each sector of our country.

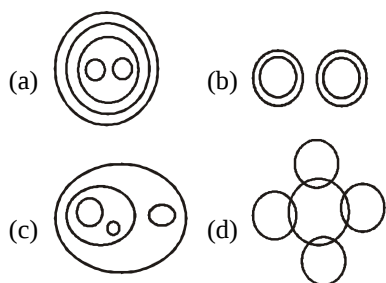
(II) Corruption has gone into their deep roots of every process and system.

Conclusion:

- (I) People think about corruption in a routine way and not especially.
(II) The eradication of corruption depends upon every individual. No government can enforce rules or regulations on people.
(a) Only conclusion II follows
(b) Conclusions I and II both follow
(c) Neither conclusion I nor II follow
(d) Only conclusion I follows
38. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
Tuesday, Thursday, Saturday, ?
(a) Monday (b) Sunday
(c) Tuesday (d) Thursday
39. Ramesh, Kamal, Mohit, Amit and Rohit are standing in a row in the order of their heights. Ramesh is shorter than Kamal but taller than Rohit. Mohit is the tallest. Amit is a little shorter than Kamal but little taller than Ramesh. Who is the shortest?
(a) Amit (b) Mohit
(c) Rohit (d) Kamal
40. Arrange the given words in the sequence in which they occur in the dictionary.
(i) Pitiful (ii) Plague
(iii) Pitiless (iv) Plaque
(v) Plankton
(a) iii, i, ii, v, iv (b) i, iii, iv, v, ii
(c) i, iii, ii, iv, v (d) i, iii, ii, v, iv
41. In a certain code language, "DISORDER" is written as "OSIDREDR". How is "PRACTICE" written in that coded language?
(a) CARPECIT (b) CAREPCIT
(c) CARTICE (d) CARECEIT
42. In the following question, select the missing number from the given series.

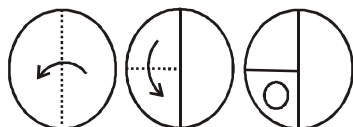
6	42	7
8	32	4
9	?	5

- (a) 35 (b) 45
(c) 25 (d) 50
43. Identify the correct combination of mathematical signs to replace "*" sign in the given equation and balance the equation.
 $14*6*3*5*4*20$
(a) $\div, +, \times, -, =$
(b) $+, \div, \times, -, =$
(c) $\times, \div, +, =, -$
(d) $=, \times, \div, +, -$
44. In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
ab _ _ abbc _ aa _ bbb
(a) cacb (b) cacc
(c) cabc (d) caca
45. Vijendra walks to his south-east side for 10 km. From there he turns 90 degrees anti-clockwise and walks 10 km and then he again turns 90 degrees clockwise and travels 10 km. In which direction is he from his original position?
(a) South (b) North
(c) East (d) South-east
46. Pointing towards a lady in a photograph, Sushma says, "She is the mother of my grandfather's son." How is Sushma related to the lady in the picture?
(a) Grand-daughter
(b) Mother-in-law
(c) Sister
(d) Mother
47. Identify the diagram that best represents the relationship among Keyboard, Mouse, Input Device, Output Device, Computer

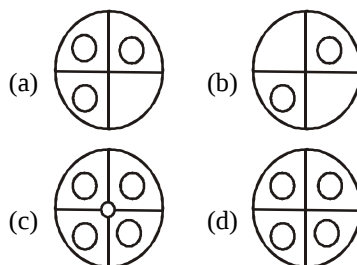


48. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when unfolded.

Question figures:

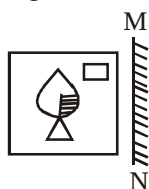


Answer figures:

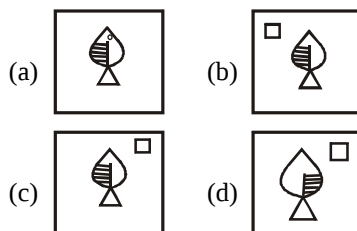


49. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?

Question figures:



Answer figures:



50. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two

matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and those of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'C' can be represented by 21, 43, etc. and 'U' can be represented by 75, 98 etc. Similarly, you have to identify the set for the word 'LUNCH'.

Matrix-I

	0	1	2	3	4
0	H	L	M	O	C
1	C	M	O	L	H
2	M	C	L	H	M
3	O	H	C	M	O
4	L	O	H	C	L

Matrix-II

	5	6	7	8	9
5	B	U	S	G	N
6	S	B	U	N	G
7	U	S	N	B	G
8	G	N	B	S	U
9	N	S	G	U	B

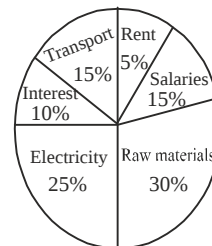
- (a) 40, 56, 68, 21, 31
(b) 01, 67, 95, 11, 23
(c) 22, 75, 86, 03, 24
(d) 32, 98, 77, 43, 14
51. If $\sin 60^\circ + \cos 45^\circ = x$, then the value of x is
(a) $1/\sqrt{2}$ (b) $(\sqrt{3} + \sqrt{2})/2$
(c) $\sqrt{2} - 1$ (d) $\sqrt{3}$
52. A shopkeeper sold pistachios at the rate of ₹ 1140 a kg and bears a loss of 5%. Now if he decides to sell it at ₹ 1260 per kg, what will be the result?
(a) 10 percent gain
(b) 5 percent gain
(c) 5 percent loss
(d) 10 percent loss
53. Mandar works 3 times as fast as Samarth. If Samarth can complete a job alone in 28 days, then in how many days can they together finish the job?
(a) 4 days (b) 5 days
(c) 8 days (d) 7 days

54. If the shopkeeper sells an item at ₹ 2275, which is marked as ₹ 3250, then what is he offering the discount?
(a) 30% (b) 20%
(c) 25% (d) 37.5%
55. A thief is stopped by a policeman from a distance of 500 metres. When the policeman starts the chase, the thief also starts running. Assuming the speed of the thief as 10 km/h and that of policeman as 18 km/h, how far the thief would have run before he is over-taken?
(a) 625 metres (b) 500 metres
(c) 750 metres (d) 375 metres
56. What smallest number should be added to 2957 so that the sum is completely divisible by 17?
(a) 9 (b) 2
(c) 3 (d) 1
57. How many balls of radius 3 cm can be made by melting a bigger ball of diameter 48 cm?
(a) 1024 (b) 512
(c) 64 (d) 256
58. By increasing the price of entry ticket to a fair in the ratio 9:13, the number of visitors to the fair has decreased in the ratio 7:4. In what ratio has the total collection increased or decreased?
(a) Increased in the ratio 52:63
(b) Increased in the ratio 36:91
(c) Decreased in the ratio 63:52
(d) Decreased in the ratio 91:36
59. The average revenues of 9 consecutive years of a company is ₹ 68 lakhs. If the average of first 5 years is ₹ 63 lakhs and that of last 5 years is ₹ 75 lakhs, find the revenue for the 5th year.
(a) ₹ 80 lakhs (b) ₹ 76 lakhs
(c) ₹ 78 lakhs (d) ₹ 74 lakhs
60. $\triangle AGHI$ is similar to $\triangle KLM$. If the ratio of Perimeter of $\triangle AGHI$: Perimeter of $\triangle KLM = 9:4$ and length of GH is 27 cm, what is the length of the corresponding side KL?
(a) 12 cm (b) 9 cm
(c) 24 cm (d) 18 cm

61. What is the measure of an exterior angle of a regular dodecagon?
 (a) 45° (b) 40°
 (c) 36° (d) 30°
62. The perimeter of a square is 40 cm. Find its area.
 (a) 100 sq. cm. (b) 25 sq. cm.
 (c) 50 sq. cm. (d) 160 sq. cm.
63. A bank offers 5% compound interest per half year. A customer deposits ₹ 6400 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is
 (a) ₹1952 (b) ₹ 488
 (c) ₹ 976 (d) ₹ 244
64. If $a + b = 10$ and $a^2 + b^2 = 58$, then find $a \cdot b$.
 (a) 21 (b) 24
 (c) 25 (d) 16
65. The ten's digit of a 2-digit number is greater than the unit's digit by 2. If we subtract 18 from the number, the new number obtained is a number formed by interchange of the digits. Find the number.
 (a) 75 (b) 64
 (c) 53 (d) 86
66. $\triangle LMN$ is right angled at M. If $m\angle N = 60^\circ$, then $\tan L =$ ____.
 (a) $\frac{1}{2}$ (b) $\frac{1}{\sqrt{3}}$
 (c) $\frac{1}{\sqrt{2}}$ (d) 2

67. What is the value of $\cot 45^\circ + \operatorname{cosec} 60^\circ$?
 (a) $\frac{(\sqrt{6} + 1)}{\sqrt{3}}$ (b) $\frac{(1 + \sqrt{3})}{2}$
 (c) $\frac{5}{\sqrt{3}}$ (d) $\frac{(\sqrt{3} + 2)}{\sqrt{3}}$
68. The areas of two similar triangles $\triangle ABC$ and $\triangle PQR$ are 36 sq. cm. and 9 sq. cm. respectively. If $PQ = 4$ cm, then what is the length of AB (in cm)?
 (a) 16 (b) 12
 (c) 8 (d) 6
69. At what point does the line $2x - 3y = 6$ cut the Y-axis?
 (a) (0, 2) (b) (-2, 0)
 (c) (2, 0) (d) (0, -2)
70. In what ratio does the point $T(x, 0)$ divide the segment joining the points $S(-4, -1)$ and $U(1, 4)$?
 (a) 1 : 4 (b) 4 : 1
 (c) 1 : 2 (d) 2 : 1
71. What is the reflection of the point $(-0.5, 6)$ in the X-axis?
 (a) (0.5, -6) (b) (-6, -0.5)
 (c) (6, -0.5) (d) $(-0.5, -6)$
72. What is the sum of the first 13 terms of an arithmetic progression if the first term is -10 and last term is 26?
 (a) 104 (b) 140
 (c) 84 (d) 98

Directions (Q. 73-75): The pie chart shows the break-up in percentage of the various expenses of a company. Study the diagram and answer the following questions.



73. Which is the second biggest expense of the company?
 (a) Raw materials
 (b) Salaries
 (c) Transport
 (d) Electricity
74. The ratio of company's expenditure on raw material and transport to salaries is
 (a) 2 : 1
 (b) 1 : 1
 (c) 1 : 2
 (d) 3 : 1
75. The company's expenditure on interest is greater than expenditure on rent by
 (a) 100%
 (b) 50%
 (c) 200%
 (d) 150%

SECTION-III : GENERAL TEST

3. (b) It is also called Sveriges Riksbank Prize, which is the central Bank of Sweden.
4. (c) 5. (b) 6. (b)
7. (c) Lord Canning (1858-1862)
8. (c) In (1211-1236) Iltutmish declared Razia to be his successor.
9. (c)
10. (a) World's tallest plant is Coast Redwood (*Sequoia Sem-pervirens*) which is 115.56 metre (379.1 ft.) long.
11. (d) 12. (b)
13. (a) The Passenger Pigeon or Wild Pigeon (*Ectopistes migratorius*) was a bird, now extinct that existed in North America and lived in enormous migratory flocks until the early 20th century.
14. (c) 15. (b) 16. (c)
17. (a) Pitch is a subjective quality of a sound that determines its position in a musical scale. It may be measured as the frequency of the pure tone of specified intensity that is judged by the average normal ear to occupy the same place in the musical scale.
18. (a) 19. (d) 20. (c)
21. (b) Lata Mangeshkar – 2001, M.S. Subbulakshmi – 1988, Pt. Ravi Shankar – 1999, Pt. Bhimsen Joshi – 2009.
22. (a)
23. (a) Amundsen has discovered South Pole.
24. (c) 25. (b)
26. (d) As Eccrinology is related to Secretions, similarly, Cardiology is related to Heart.

27. (b) As C F I : X U R

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +3 & & +3 & \\ & & & & \end{array}$$

Similarly,

G J M : T Q N

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +3 & & +3 & \\ & & & & \end{array}$$

Finally, the missing term is TQN.

28. (c) As

B F J : K O S

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +4 & & +4 & \\ & & & & \end{array}$$

Similarly

K O S T X B

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +4 & & +4 & \\ & & & & \end{array}$$

Finally, the missing term is TXB.

29. (c) As

$$2 + 4 \quad 6 \quad (6 \times 6) \quad 36$$

Similarly

$$5 + 2 \rightarrow 7 \rightarrow (7 \times 7) \rightarrow \boxed{49}$$

Finally, the missing term is 49.

30. (a) Nose, Eyes and Lips are the parts of body.

So, body is the odd word.

31. (c) As

B Y C X D W E V

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +1 & & +1 & \\ & & & & \end{array}$$

Similarly,

G U H S I R J Q

$$\begin{array}{ccccc} & \uparrow & & \uparrow & \\ & +1 & & +1 & \\ & & & & \end{array}$$

Finally, the odd word pair is GUHS.

32. (d) 13, 17 and 19 are prime numbers and 21 is composite number. Finally, 21 is the odd number.

33. (c) $25673 = 2 + 5 + 6 + 7 + 3 = 23$

$$34664 = 3 + 4 + 6 + 6 + 4 = 23$$

$$42763 = 4 + 2 + 7 + 6 + 3 = 22$$

$$25556 = 2 + 5 + 5 + 5 + 6 = 23$$

Finally, the odd number pair is 42763.

34. (b)

D $\xrightarrow{+1}$ E $\xrightarrow{+1}$ F $\xrightarrow{+1}$ G $\xrightarrow{+1}$ H

J $\xrightarrow{+1}$ K $\xrightarrow{+1}$ L $\xrightarrow{+1}$ M $\xrightarrow{+1}$ N

O $\xrightarrow{+1}$ P $\xrightarrow{+1}$ Q $\xrightarrow{+1}$ R $\xrightarrow{+1}$ S

Finally, the missing term is HNS.

35. (c)

D $\xrightarrow{+4}$ I $\xrightarrow{+6}$ O $\xrightarrow{+7}$ V

E $\xrightarrow{+5}$ J $\xrightarrow{+6}$ P $\xrightarrow{+7}$ W

F $\xrightarrow{+5}$ K $\xrightarrow{+6}$ Q $\xrightarrow{+7}$ X

Finally, the missing term is IJK.

36. (b)

4 18 48 100 $\boxed{180}$

$$\begin{array}{ccccccc} & \uparrow & & \uparrow & & \uparrow & \\ & +14 & & +30 & & +52 & \\ & & & & & & \end{array}$$

Finally, the missing term is 180.

37. (d) According to the statements' only conclusion I follows.

38. (a) The series is:

Tuesday, Thursday, Saturday, $\boxed{\text{Monday}}$

$$\begin{array}{ccccccc} & \uparrow & & \uparrow & & \uparrow & \\ & +2 & & +2 & & +2 & \end{array}$$

Finally, 'Monday' is the missing term.

39. (c) According to the question, Ramesh > Rohit > Mohit > Kamal > Amit

So, Rohit is the shortest.

40. (d) According to the dictionary, The sequence of words is:

(i) Pitiful, (iii) Pitiless, (ii) Plague, (v) Plankton, (iv) Plaque.

41. (a) As

DISO RDER OSID REDR

$$\begin{array}{ccccccc} & \uparrow & & \uparrow & & \uparrow & \\ & & & & & & \end{array}$$

Opposite

Similarly

PRAC TICE CARP ECIT

$$\begin{array}{ccccccc} & \uparrow & & \uparrow & & \uparrow & \\ & & & & & & \end{array}$$

Opposite

Finally, 'PRACTICE' is written as 'CARPECIT' in coded language.

42. (b) As

$$6 \times 7 = 42$$

and

$$8 \times 4 = 32$$

Similarly,

$$9 \times 5 = 45$$

Finally, the missing term is 45.

43. (b) From option (b) the given equation is:

$$14 * 6 * 3 * 5 * 4 * 20$$

$$\Rightarrow 14 + 6 \div 3 \times 5 - 4 = 20$$

$$\Rightarrow 14 + 2 \times 5 - 4 = 20$$

$$\Rightarrow 14 + 10 - 4 = 20$$

$$\Rightarrow 24 - 4 = 20$$

$$\Rightarrow 20 = 20$$

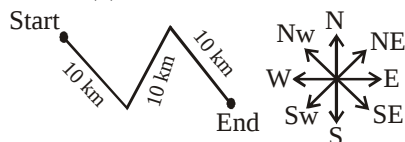
44. (d) The series is:

a b $\boxed{c}$ / $\boxed{a}$ a b b c $\boxed{c}$ / a a $\boxed{a}$ b b b

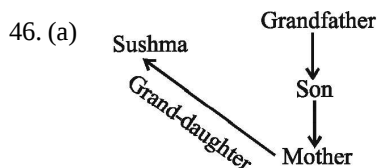
∴ The series becomes,
abcaabbccaabbb

Finally, 'caca' will complete the series.

45. (d)

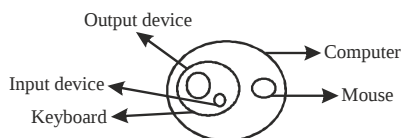


Finally, Vijendra is in south-east direction from his original position.

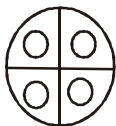


Finally, Shushma is grand-daughter to the lady of photograph.

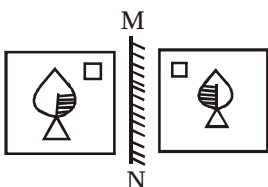
47. (c) The best representation among the given words.



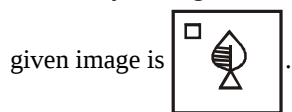
48. (d) A piece of paper is folded and punched. When unfolded, it will appear as given below:



49. (b)



Finally, the right mirror image of the



given image is

50. (a) L = 01, 13, 22, 40, 44

U = 56, 67, 75, 89, 98

N = 59, 68, 77, 86, 95

C = 04, 10, 21, 32, 43

H = 00, 14, 23, 31, 42

For 'LUNCH', the set of numbers is
40, 56, 68, 21, 31.

51. (b) $x = \sin 60^\circ + \cos 45^\circ$

$$= \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{2}} = \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2}$$

$$= \left(\frac{\sqrt{3} + \sqrt{2}}{2} \right)$$

52. (b)

Let C.P. be x

$$\text{S.P. of pistachios} = \frac{(100-5)}{100} \times x$$

Then,

$$\Rightarrow 1140 = \frac{95}{100} \times x$$

$$\Rightarrow 1140 = \frac{19}{20} x$$

$$\therefore x = 50 \times 20$$

$$\text{CP} = ₹ 1200$$

$$\text{Profit} = (\text{SP} - \text{CP}) = (1260 - 1200) \\ ₹ 60$$

$$\text{Profit \%} = \frac{60 \times 100}{1200} = 5\%$$

Hence, gain is 5%.

53. (d) Mandar = 3 times of Samarth

$$\text{Samarth completes in 1 day} = \frac{1}{28}$$

$$\text{Mandar completes in 1 day} = \frac{3}{28}$$

Both will complete in 1 day

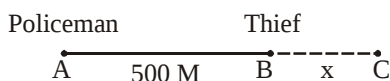
$$= \frac{1}{28} + \frac{3}{28} = \frac{4}{28} = \frac{1}{7}$$

$$\text{Time taken by both} = \frac{1}{\frac{1}{7}} = 7 \text{ days.}$$

$$\text{54. (a) Discount} = (3250 - 2275) \\ ₹ 975$$

$$\text{Discount \%} = \frac{975 \times 100}{3250} = 30\%$$

55. (a)



Let the thief will be caught at point C.

The same time will be taken by both.

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

According to the question:

$$\Rightarrow \frac{x}{10} = \frac{x+0.5}{18}$$

$$\Rightarrow 18x = 10x + 5$$

$$\Rightarrow 8x = 5$$

$$\therefore x = \frac{5 \times 1000}{8} \text{ metres}$$

$$= 5 \times 125 \text{ metres} = 625 \text{ metres}$$

56. (d) $17 \overline{) 2957} (13$

$$\begin{array}{r} 17 \overline{) 2957} \\ \underline{17} \\ 125 \\ \underline{119} \\ 67 \\ \underline{51} \\ 16 \end{array}$$

$$17 - 16 = 1$$

∴ 1 should be added to divide completely.

57. (b)

No. of balls

$$= \frac{\text{Volume of larger sphere}}{\text{Volume of smaller sphere}}$$

$$= \frac{\frac{4}{3} \pi \times (24)^3}{\frac{4}{3} \pi (3)^3}$$

$$\left(\frac{24}{3} \right)^3 = (8)^3 = 8 \times 8 \times 8 = 512$$

58. (c) Let prices of tickets be ₹ 9x and ₹ 13x

Price decreased in the ratio

$$= \frac{9x \times 7}{13x \times 4} = \frac{63x}{52x} = \frac{63}{52}$$

59. (c)

Total revenues of 9 years

$$= 9 \times 68 = ₹ 612 \text{ lakhs}$$

Total revenues of first 5 years

$$= 5 \times 63 = ₹ 315 \text{ lakhs}$$

Total revenues of last 5 years

$$= 5 \times 75 = ₹ 375 \text{ lakhs}$$

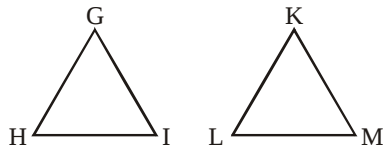
The revenues of 5th year

$$= 315 + 365 - 612$$

$$= (690 - 612) = ₹ 78 \text{ lakhs}$$

Hence, the volume of 5th year is ₹ 78 lakhs.

60. (a)



$$\frac{\text{Perimeter of } \triangle GHI}{\text{Perimeter of } \triangle KLM} = \frac{GH}{KL}$$

$$\Rightarrow \frac{9}{4} = \frac{27}{KL}$$

$$\therefore KL = \frac{27 \times 4}{9} = 12 \text{ cm.}$$

61. (d) Dodecagon has 12 sides

$$\text{Interior angle} = \frac{(2n-4) \times 90}{n}$$

$$= \frac{(2 \times 12 - 4) \times 90^\circ}{12}$$

$$= \frac{20 \times 90^\circ}{12} = 10 \times 15 = 150^\circ$$

$$\text{Exterior angle} = 180^\circ - 150^\circ = 30^\circ$$

62. (a) Perimeter = $4 \times \text{side}$

$$40 = 4 \times \text{side}$$

$$\text{Side} = \frac{40}{4} = 10 \text{ cm}$$

$$\text{Area of square} = (\text{side})^2 = (10)^2 = 100 \text{ sq. cm.}$$

$$63. (c) A = P \left(1 + \frac{r}{100} \right)^n + \frac{PRT}{100}$$

$$= 6400 \left(1 + \frac{5}{100} \right)^2 + \frac{6400 \times 10 \times 1}{100 \times 2}$$

$$= 6400 \times \frac{21}{20} \times \frac{21}{20} + 320$$

$$= (7056 + 320) = ₹ 7376$$

$$\text{C.I.} = A - P = ₹ (7376 - 6400) = ₹ 976$$

64. (a) $a + b = 10$, $a^2 + b^2 = 58$

Then,

$$a^2 + b^2 + 2ab = 100$$

$$\Rightarrow 58 + 2ab = 100$$

$$\Rightarrow 2ab = 100 - 58 = 42$$

$$\therefore ab = 21$$

65. (d) Let two-digit number be $10x + y$

In case I

$$x = y + 2$$

$$x - y = 2$$

...(i)

In Case II

$$10x + y - 18 = 10y + x$$

$$\Rightarrow 9x - 9y = 18$$

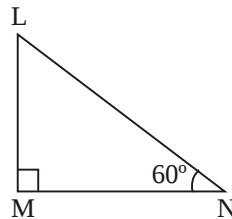
$$9(x - y) = 18 \Rightarrow x - y = 2 \quad \dots(ii)$$

Solving equations (i) and (ii), we get:

$$x = 8, y = 6$$

Hence, the number will be 86.

66. (b)



$$\angle MNL = 60^\circ$$

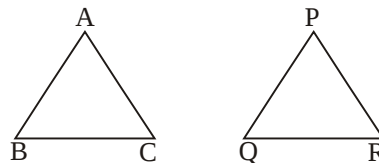
$$\therefore \angle MLN = 30^\circ$$

$$\therefore \tan L = \tan 30^\circ = \frac{1}{\sqrt{3}}$$

67. (d) $\cot 45^\circ + \operatorname{cosec} 60^\circ$

$$= 1 + \frac{2}{\sqrt{3}} = \frac{\sqrt{3} + 2}{\sqrt{3}}$$

68. (c)



$$\triangle ABC \sim \triangle PQR$$

$$\therefore \frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP}$$

$$\therefore \frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{AB^2}{PQ^2}$$

$$\Rightarrow \frac{36}{9} = \frac{AB^2}{(4)^2}$$

$$\Rightarrow AB^2 = 4 \times 4 \times 4 = 64$$

$$\Rightarrow AB = \sqrt{64} = 8 \text{ cm.}$$

69. (d) x-co-ordinate on y-axis = 0

$\therefore$ Putting $x = 0$ in the equation:

$$2x - 3y = 6$$

$$\Rightarrow 2 \times 0 - 3y = 6$$

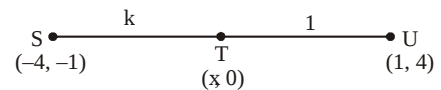
$$\Rightarrow -3y = 6$$

$$\Rightarrow y = \frac{6}{-3} = -2$$

$\therefore$ Required co-ordinates of the

point = $(0, -2)$

70. (a)



When point (x, y) divides the line joining points (x_1, y_1) and (x_2, y_2) in the respective ratio of $m_1 : m_2$, then

$$x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$

$$y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$

Here, $(x_1, y_1) = (-4, -1)$

$(x_2, y_2) = (1, 4)$

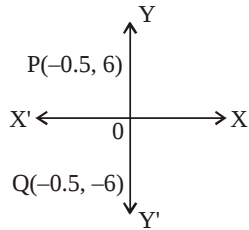
$$m_1 : m_2 = k : 1$$

$$(x, y) = (x, 0)$$

$$\therefore 0 = \frac{k \times 4 + 1(-1)}{k + 1}$$

$$\Rightarrow 4k - 1 = 0 \Rightarrow k = \frac{1}{4}$$

71. (d)



Point P(-0.5, 6) lies in second quadrant

Its image in x-axis will lie in third quadrant.

$\therefore$ Co-ordinates of Q = (-0.5, -6)

72. (a) First term = a = - 10

Last term = l = 26

Number of terms = n = 13

$\therefore$ Required sum = $\frac{n}{2}(a + l)$

$$= \frac{13}{2}(-10 + 26)$$

$$= \frac{13}{2} \times 16 = 104$$

73. (d) Ascending order of percentage expenditure:

Rent < Interest < Transport =

Salaries < Electricity < Raw-materials

74. (d) Required ratio = (30 + 15) :

15 = 45 : 15 = 3 : 1

75. (a) Required percentage:

$$= \left(\frac{10 - 5}{5} \right) \times 100 = 100\%$$

□□□