class 10
MAT
Mental Ability Test

TARGET
NTSE
National Talent Search Examination

Solved Paper
2016
Stage 2

Time : 45 Minutes   **Max. Marks : 50**

Instructions for Candidates

Read the following instructions carefully before you open the questions booklet :

1. Answers are to be given on a separate answersheet.

2. Write your eight-digit Roll Number very clearly on the test-booklet and answer-sheet as given in your letter/ admission card.

3. Write down the Booklet Number in the appropriate box on the answer sheet.

4. There are 50 questions in this test. All are compulsory.

5. Please follow the instructions for marking the answers given on the answer sheet.

6. For questions 1 – 50, put a cross mark (×) on the number of the correct alternative on the answer-sheet against the corresponding question number.

7. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and try them again.

8. Since the time allotted for this question paper is very limited you should make the best use of it by not spending too much time on any one question.

9. Rough work can be done anywhere in the booklet but not on the answer sheet/loose paper.

10. Every correct answer will be awarded one mark.

11. Please return the Test-booklet and answer-sheet to the invigilator after the test.

1. Complete the series
   D3Y104,   G9U91,   J27Q78,   M8IM65,   _____
   (1) P243139   (2) Q243I52
   (3) P243I52   (4) Q162J39

2. Which of the following can replace the question mark?

0.8	0.512
0.04	?

   (1) 0.0064   (2) 0.0016
   (3) 0.000064   (4) 0.000016

Directions (Qs. 3-5): *There are eight people A, B, C, D, E, F, G and H sitting around a circular table facing centre. B is sitting second to the left fo G who is sitting third to the right of F. Only E is sitting between A and C. C is sitting third to the left of B. Only one person is sitting between E and H.*

3. Which of the following is correct ?
   (1) D is sitting third to the left of H
   (2) F is sitting third to the left of G
   (3) C is sitting third to the left of D
   (4) H is sitting second to the right of C

4. Based on the given information, which of the following is the correct position?
   (1) A and C are sitting next to each other
   (2) F and G are sitting next to each other
   (3) H and F are sitting next to each other
   (4) D is sitting next to H

5. Which of the following is the correct order of sitting of persons right of A?
   (1) ECHDGBF   (2) ECHFBDG
   (3) EBHDCFG   (4) CHBEDGF

6. Amita is standing at point A facing north direction. She walks for 5 kilometres in the north east direction. Then she turns at an angle of 90° at her right and once again travels the same distance. She reaches at Point B. Now she takes a turn at 90° to her left and walks for 3 kilometres and once again takes right turn at 90° and travels 3 kilometres and reaches at Point C. What is the direction of Point B and C respectively with respect to Point A ?

   (1) East , East   (2) East, North-East
   (3) North -East, East   (4) North-East, North-East

7. In the question given below, there are three staements followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions, and then decide which of given conclusion(s) logically follows from the given statements disregarding commonly known facts.
   Statements : All teachers are professors
   No professor is male
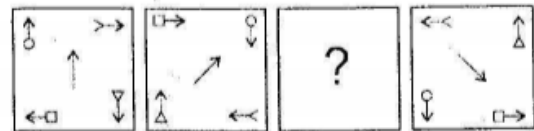   Some males are designers
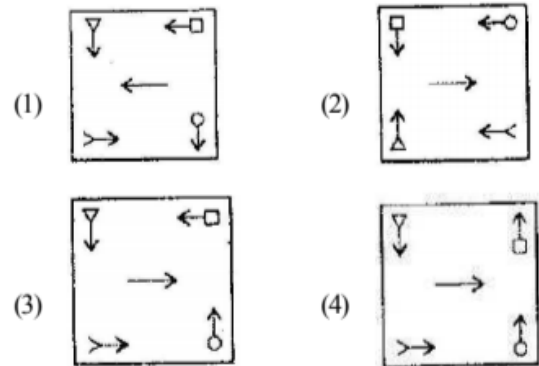   Conclusion : I No designer is professor
   II Some designers are professors
   III No male is teacher
   (1) Only III follows
   (2) Both I and II follows
   (3) Either I or II follows
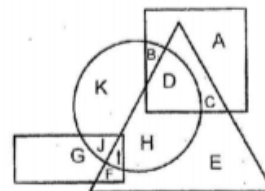   (4) Either I and III follows; or II and III follows

8. In the following question , there are four figures A, B, C and D called problem figures. A and B are related in the same way as C and D are related. Which figure out of four given options will come in place of figure C?

   (A)   (B)   (C)   (D)

   (1)   (2)
   (3)   (4)

9. In the following figure, square represents professors, circle represents males, triangle represents cricketers and rectangle represents trainers.

   On the basis of information given in the above diagram, which of the following is correct ?
   (1) C represents male professors who are cricketers too
   (2) I represents male trainers who play cricket
   (3) B represents male professors who are trainers
   (4) F represents male trainers who are not cricketers

Directions (Qs. 10-12): *Five periods of Hindi, English, Science, Mathematics and Sanskrit are to be taken by five different teachers A, B, C, D and E in five different periods 1, 2, 3, 4, and 5. Each teacher will teach only one subject and takes only one period.*
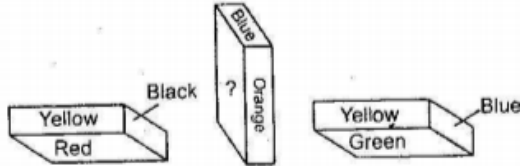
Science is not the 3rd period. 5th period is taken by D who does not teach Hindi or Sanskrit. A takes 3rd period. The one who teaches Sanskrit takes 4th period. There are two periods after and two periods before Mathematics period. Hindi period is between Science and Mathematics period. B teaches Science. E takes period just before D's period.

After reading the above information, answer the following questions.

10. Who teaches the Hindi and in which period?
    (1) C teaches Hindi in 2nd period
    (2) E teaches Hindi in 1st period
    (3) C teaches Hindi in 4th period
    (4) Data is inadequate

11. Which of the following is the correct sequence of subject-period -teacher?
    (1) Mathematics - 3 - D (2) Sanskrit - 4 - E
    (3) Mathematics - 2 - A (4) Hindi - 2 - E
12. The subject taught by teachers A, B, C, D and E respectively are
    (1) Mathematics, Science, Hindi, Sanskrit, English
    (2) Mathematics, Science, English, Hindi, Sanskrit
    (3) Mathematics, Hindi, English, Sanskrit, Science
    (4) Mathematics, Science, Hindi, English, Sanskrit
13. A cuboid is painted in 6 colours, i.e. red, green, blue, yellow, orange and black, one colour on each side. Three position are shown below :

    What is the colour of the side having question mark?
    (1) Red   (2) Yellow   (3) Green   (D) Blue
14. If × stands for + , ÷ stands for − , + stands for ÷ and − stands for x, then what is the value of the following expression?
    $÷ 33 × 11 ÷ 9 × 28 + 4 − 5$
    (1) 16   (2) 8   (3) 4   (4) 2
15. If REASON is coded as PGYUMP, then DIRECT will be coded as?
    (1) BKPGAV   (2) FKTGEV
    (3) FGTCER   (4) BGPCAR
16. Read the information carefully and answer then following question :
    A family has husband, wife fand three children A, B and C. The present age of husband is 5 years more then the wife's present age. Wife's present age is twice the present age of A. The present age of A is 12 years more than the present age of B. B's present age is $1\frac{1}{2}$ time the present age of C. If C is 12 yeras old at present, what is the present age of husband's friend Ram who is 15 years younger than husband (him)?
    (1) 30 years   (2) 50 years
    (3) 60 years   (4) 80 years

Direction (Qs. 17-18) : *Pritam, Zeba, Joy and Anu were assigned duties in the English language alphabetical order of their names. Only one of them is assigned a duty on a day. This assignment is repeated in the same sequence. Working week starts from Monday and ends on Friday. Answer the following :*

17. Who worked for least number of days and for how many days if the duties are assigned for 3 weeks ?
    (1) Anu, 3 days   (2) Anu, 4 days
    (3) Zeba, 3 days   (4) Zeba, 4 days
18. Who were assigned duties on Wednesday in 1st, 2nd and 3rd weeks respectively ?
    (1) Pritam, Zeba, Anu   (2) Pritam, Anu, Zeba
    (3) Pritam, Joy, Anu   (4) Joy, Zeba, Anu

19. In a showroom, 60 percent discount is given to everybody on all the articles. The succesive discount of 40 percent is offered to female students. If printed price of an article of Rs. 1000 /- is bought by a female student, how much she will have to pay for that article ?
    (1) Inconclusive   (2) Zero
    (3) ` 160    (4) ` 240
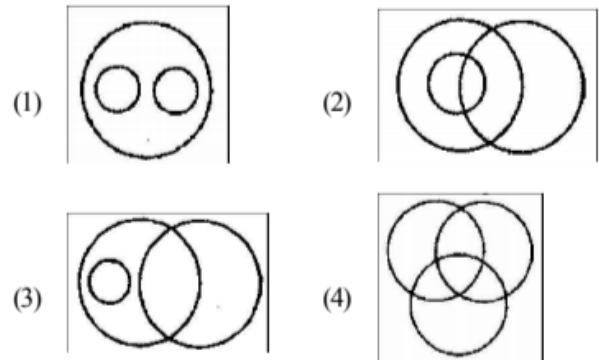20. From among the four alternatives given below, which number replaces the question mark ?

    (1) 11   (2) 14   (3) 16   (4) 17
21. Which of the following diagrams indicates the best relation among men, fathers and teachers ?

22. Guitar : Music :: Book : ?
    (1) Pages   (2) Writer   (3) Publisher   (4) Knowledge
23. Reena, Rita and Zoha are three friends. Reena is the eldest followed by Rita and Zoha. Reena is 2 years elder to Rita and 5 years elder to Zoha. The sum of the present age of Reena and Zoha is 3 times the age of Rita 5 years ago. What is the current age of Rita ?
    (1) 12 years   (2) 14 years   (3) 16 years   (4) 18 years

Direction (Qs. 24-26) : Lata was cutting a cuboid shaped cake at her birthday party which has 12 inches length , 8 inches breadth and 2 inches height
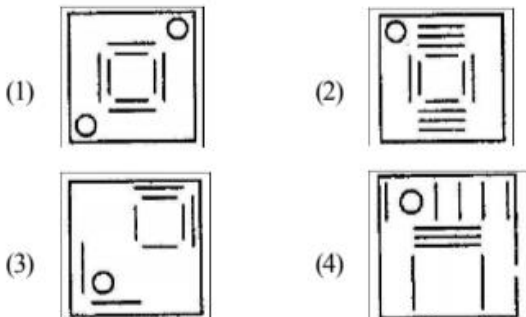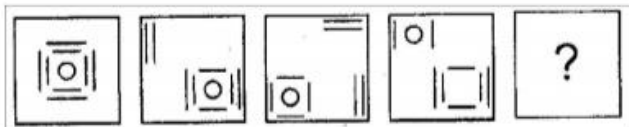Two faces measuring 8 inches × 2 inches are coated with chocolate cream.
Two faces measuring 12 inches × 2 inches are coated with vanilla cream.
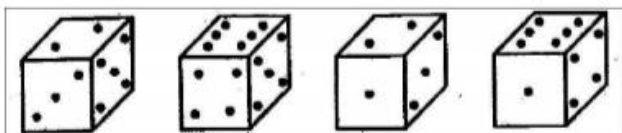Two faces measuring 12 inches × 8 inches are coated with butter scotch cream.
The cake is into 24 cubes of size, 2 inches each side.

24. How many cake pieces are there which have only two types of coatings of cream (any two out of chocolate , vanilla and butter scotch)?
    (1) 4   (2) 8   (3) 12   (4) 16

25. How many cake pieces will have only one type of coating of cream ?
    (1) 4　　　(2) 8　　　(3) 12　　　(4) 20

26. Kasim, Rajni, Pema and Gupreet loved the chocolate cream and they decided to take all pieces with chocolate coating for them. How many cake pieces will be avaliable for others ?
    (1) 8　　　(2) 12　　　(3) 16　　　(4) 20

27. During her morning walk in the park, Tanya saw Monica coming from the opposite direction. They greeted each other and had a face-to-face chatting. If Monica's shadow was to the right of Tanya, then which direction was Monica facing ?
    (1) North　　(2) East　　(3) West　　(4) South

28. Given below is a question and two statements I and II. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both statements carefully and give the answer.
    Question : A, B, C, D and E are sitting in a row, not in that order. A is sitting next to E. Is E sitting between A and C ?
    Statements :
    　I.　B and D are siting at the two ends of the row.
    　II.　C is not sitting next to A
    (1)　I alone is sufficient
    (2)　II alone is sufficient
    (3)　Both I and II together are sufficient
    (4)　Both I and Ii together are not sufficent

29. A person needs to find the fastest two horses from 16 horses. Only a race of 4 horses can be conducted at a time. What is the minimum number of races to be conducted to determine the fastest two? Assume that horses will not get tired at all, and time cannot be measured.
    (1) 6　　　(2) 7　　　(3) 8　　　(4) 15

30. Which letter replaces the question mark ?
    b c e g k ? q s
    (1) l　　　(2) m　　　(3) n　　　(4) o

31. From among the four alternatives given below, which figure replaces the question mark ?

(1)　(2)　(3)　(4)

32. How many points will be on the face opposite to the face which contains 2 points?

(1) 1　　　(2) 5　　　(3) 4　　　(4) 6

33. Identify the missing number in the following sequence
    2, 10, 30, 68, ___, 222
    (1) 120　　(2) 130　　(3) 134　　(4) 150

34. A + B means A is the daughter of B, A × B means A is the son of B and A − B means A is the wife of B. If T − S × B − M, which of the following is NOT true ?
    (1)　M is the husband of B　(2)　B is the mother of S
    (3)　S is the daughter of B　(4)　T is the wife of S

35. In the question below, there are three satements followed by four conculsions numbered I, II, III, and IV. You have to consider every given statement as true, even if it does not conform to the well -known facts. Read all the concusions and then decide which of the conclusions can be logically derived from the given statements.
    Statements :
    　　　All frogs are snakes
    　　　Some snakes are birds
    　　　All birds are apples
    Conclusions :
    　　　I Some apples are frogs
    　　　II No apple is a frog
    　　　III Some snakes are apples
    　　　IV All birds are snakes
    (1)　Either I or II; and III follows
    (2)　III and IV follows
    (3)　Either I or II follows
    (4)　Either I or II; and either III or IV follows

36. In the following sequence, one number is wrong. Find the wrong number.
    9, 23, 51, 106, 219, 643
    (1) 23　　　(2) 51　　　(3) 106　　　(4) 219

37. Which option shows the correct water image of the characters given below.
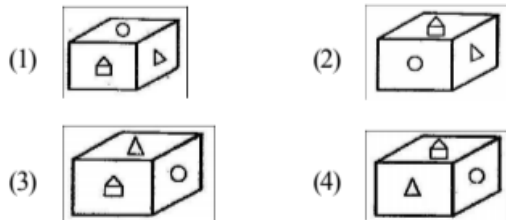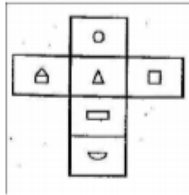   SUPE2547DLR
    (1) ꙅⴖɓƎᒷꙅ⋏ᐊ⋌ᗡ⌐Я　(2) ꙅⴖᗡƎꙄᒷ⋏ᐊᎢᗡ⌐Я
    (3) ꙅⴖᑲƎꙄᒷⴺᐊ⋌ᗡ⌐Я　(4) ꙅⴖᑲƎꙄᒷⴺᐊ⋌ᗡ⌐Я

38. Ronald is elder to Veena while Amilia and Shree are elder to Parul who lies between Ronald and Amilia. If Amilia is elder to Veena, then which one of the following statements is necessarily true?
    (1)　Ronald is elder to Amilia
    (2)　Amilia is elder to Shree ,
    (3)　Parul is elder to Shree
    (4)　Parul is elder to Veena

39. In the following question, a matrix of certain numbers is given. These numbers follow a certain trend, either row-wise or column-wise. Find this trend and choose the missing number from the given alternatives.
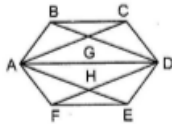
1,	5	7	75
8	3	4	?
9	7	8	194

(1) 20　　　(2) 43　　　(3) 89　　　(4) 96

40. The figure given below is the unfolded position of a cubical dice. Select the option figure which is same as the figure, when it is folded.

(1)   (2)

(3)   (4)

41. A wall clock is placed in a room. It chimes 8 times at 8 O'clock. A person "X" present outside the room listens the 8 beats of chimes in 8 seconds. Assume that each chime of the wall clock takes equal time, To listen 11 chimes at 11 O' clock how much time will be required by person "X"
   (1) 11 seconds   (2) 11.43 seconds
   (3) 12 seconds   (4) 12.43 seconds

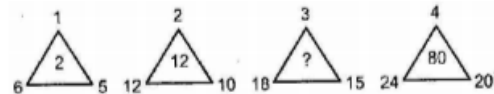42. A geometrical design has been drawn below. Find out the total number of quadrilaterals.

   (1) 8   (2) 10   (3) 11   (4) 12

Direction (Qs. 43 - 45) : *Study the following information and answer the questions given below it.*

Six boys Prem, Kamal, Ramesh, Shyam, Tarun and Umesh go to University Sports Centre and play a different game of football, cricket, tennis, kabaddi, squash and volleyball.
   A. Tarun is taller than Prem and Shyam
   B. The tallest among them plays kabaddi
   C. The shortest one plays volleyball
   D. Kamal and Shyam neither play volleyball nor kabaddi
   E. Ramesh plays volleyball
   F. If all six boys stand in order of their height then Tarun is in between Kamal and Prem; and Tarun plays football

43. Who among them plays kabaddi?
   (1) Kamal   (2) Ramesh
   (3) Shyam   (4) Umesh

44. Who will be at fourth place if they are arranged in the descending order of their heights ?
   (1) Prem   (2) Kamal
   (3) Tarun   (4) Shyam

45. Who plays tennis?
   (1) Kamal   (2) Prem
   (3) Tarun   (4) Information insufficient

46. What comes next in the following sequence of codes?
   1218199, 1006480, 814963, 643648, ...-
   (1) 366478   (2) 1442560
   (3) 492535   (4) 253634

47. What value replaces the question mark?

   (1) 18   (2) 24   (3) 36   (4) 45

48. A coding language writes English words in the coded form as:
   STAT $\theta\delta\theta\gamma$
   RAT $\delta\theta\beta$
   SAY $\epsilon\gamma\delta$
   The code does not appear in the same order of the letters in the English words. On this basis, which of the following will be the code of the word TRAY?
   (1) $\epsilon\beta\theta\gamma$ (2) $\beta\gamma\delta\epsilon$
   (3) $\beta\theta\delta\epsilon$ (4) $\theta\delta\gamma\epsilon$

49. A work is expected to be completed by 20 workers in 25 days. The work is started by 10 workers. Then, after every 5 days, 5 more workers join the work. In how many days the work will be completed ?
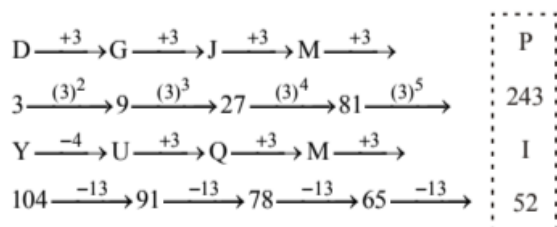   (1) 20   (2) 25   (3) 30   (4) 35

50. Find the maximum length of a rod with negligible thickness which can be fitted into a cubical box of 1 meter length of each side.
   (1) $\sqrt{2}$ (2) $\sqrt{2.25}$ (3) $\sqrt{3}$ (4) 2

ANSWER KEY

1	(3)	6	(1)	11	(2)	16	(2)	21	(2)	26	(3)	31	(3)	36	(3)	41	(2)	46	(3)
2	(3)	7	(4)	12	(4)	17	(3)	22	(4)	27	(1)	32	(4)	37	(4)	42	(3)	47	(3)
3	(2)	8	(3)	13	(3)	18	(1)	23	(2)	28	(3)	33	(2)	38	(4)	43	(4)	48	(3)
4	(3)	9	(2)	14	(3)	19	(4)	24	(3)	29	(1)	34	(3)	39	(3)	44	(1)	49	(2)
5	(2)	10	(1)	15	(1)	20	(2)	25	(2)	30	(2)	35	(1)	40	(1)	45	(1)	50	(3)

Hints & Explanations

1. **(3)** The pattern the series is as follows :

$$D \xrightarrow{+3} G \xrightarrow{+3} J \xrightarrow{+3} M \xrightarrow{+3} \boxed{P}$$

$$3 \xrightarrow{(3)^2} 9 \xrightarrow{(3)^3} 27 \xrightarrow{(3)^4} 81 \xrightarrow{(3)^5} \boxed{243}$$

$$Y \xrightarrow{-4} U \xrightarrow{+3} Q \xrightarrow{+3} M \xrightarrow{+3} \boxed{I}$$

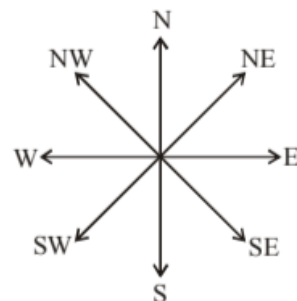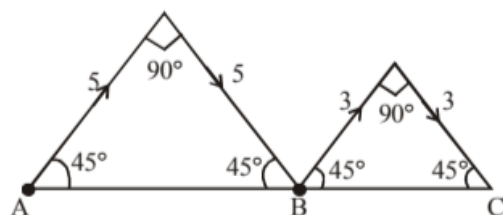$$104 \xrightarrow{-13} 91 \xrightarrow{-13} 78 \xrightarrow{-13} 65 \xrightarrow{-13} \boxed{52}$$

So, the next term will be P243I52.

2. **(3)** As, $(0.8)^3 = 0.512$
Similarly, $(0.04)^3 = .000064$
So, .000064 will replace the question mark.

3-5. According to the given information, the sitting arrangement is as following:
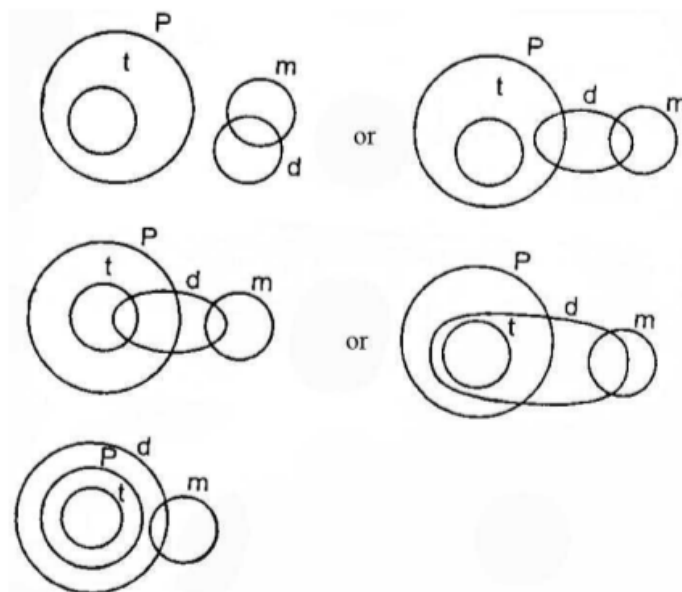

3. **(2)** F is sitting third to the left of G
So, option (2) is correct.

4. **(3)** H & F are sitting next to each other. So, option (3) is correct.

5. **(2)** ECHFBDG is the correct order of sitting of persons right of A. Hence, option (2) is correct.

6. **(1)** According to the given information, the direction movements of Amita is as follows :

Here, A is the starting point and C is the final point. It is clearly shown from the above direction diagram that the direction of point B and C is east direction with respect to point A. Hence option (1) is correct answer.

7. **(4)** On the basis of given statements in the question, the venn diagram is as follows :

Here, T = Teachers
P = Professors
M = Male
D = Designer
or

So, either I and III follows ; or II and III follows.
Hence, option (4) is correct answer.

8. (3) In each step, each elements of the figures shift one side clockwise direction with rotation of 180°. So, option (3) is correct.

9. (2) On the basis of information given in the question diagram, I represents male trainers who play cricket because I is common in rectangle, circle and triangle. So, Option (2) is correct answer.

(10-12) According to the given information, the arrangement is as follows :

	2nd Hindi	5th Eng	3rd Sci 1st	3rd Maths	4th Sanskrit
A 3rd	×	×	×	✓	×
B	×	×	✓	×	×
C	✓	×	×	×	×
D 5th	×	✓	×	×	×
E 4th	×	×	×	×	✓

Periods	Subjects	Teachers
1	Science	B
2	Hindi	C
3	Maths	A
4	Sanskrit	E
5	English	D

10. (1) C teaches Hindi in 2nd period

11. (2) Sanskrit – 4– E is the correct sequence of subject period teacher

12. (4) Mathematics, Science, Hindi, English, Sanskrit subject taught by teachers A, B, C, D and E respectively.

13. (3) According to the given information:

	Green	
Blue	Yellow	Black
	Red	
	Orange	

It is clear from the above diagram that the colour of the side having question mark is green.

14. (3) Given that,
$33 \times 11 \div 9 \times 28 + 4 - 5$
after changing the sign $\div 33 \times 11 \div 9 \times 28 + 4 - 5$
$= -33 + 11 - 9 + 28 \div 4 \times 5$
$= -33 + 11 - 9 + 7 \times 5$
$= -42 + 46 = 4$
So, option (3) is correct answer.

15. (1)

18	5	1	19	15	14
R	E	A	S	O	N

As, $-2\downarrow$ $+2\downarrow$ $-2\downarrow$ $+2\downarrow$ $-2\downarrow$ $+2\downarrow$

16	7	25	21	13	16
P	G	Y	U	M	P

Similarly,

4	9	18	5	3	20
D	I	R	E	C	T

$-2\downarrow$ $+2\downarrow$ $-2\downarrow$ $+2\downarrow$ $-2\downarrow$ $+2\downarrow$

B	K	P	G	A	V
2	11	16	7	1	22

So, DIRECT will be coded as BKPGAV.

16. (2) Husband = Wife

A   B   C

Present age husband = Present age of wife + 5.
Present age of wife = 2 × Present age of A
Present age of A = 12 + Present age of B
Present age of B = 3/2 × Present age of C
Present age of C = 12 years

$B = \dfrac{3}{2} \times \cancel{12}^{6} = 18$ yrs.

A = 12 + 18 = 30 yrs.
Wife = 2 × 30 = 60 yrs.
Husband = 65 yrs.
∴ Friend's age = Age of husband – 15 = 50 yrs.

17. (3) Given,
Pritam, Zeba, Joy & Anu
Alphabetical order → Anu, Joy, Pritam, Zeba,
Working days → Monday – Friday → 3 weeks → 15 days

Anu	Joy	Pritam	Zeba
4 day	4 day	4 day	3 day

It is clear from the above information that Zeba worked for least number of days and 3 days if the duties are assigned for 3 weeks.

18. (1)

Week	Mon	Tue	Wed	Thu	Fri
1st→	A	J	P	Z	A
2nd→	J	P	Z	A	J
3rd→	P	Z	A	J	P

Or

Anu	M		
Joy	T	M	
Pri	W	T	M
Zeba	Th	W	Tu
Anu	Fri	Th	W
Joy		Fri	Th
Pri			Fri

So, from the above analysis, Pritam, Zeba and Anu were assigned duties on Wednesday in 1st, 2nd and 3rd week respectively.

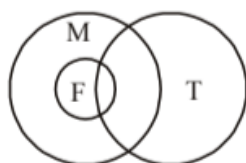**19.** **(4)** S.P. $= 1000 \times \dfrac{40}{100} \times \dfrac{60}{100} = 240$

20. **(2)**

4	5
2	5

$4 \times 5 = 20$
$-(2+5) = -7$
$\dfrac{}{13}$,

6	4
7	2

$6 \times 4 = 24$
$-(7+2) = -9$
$\dfrac{}{15}$

and

9	3
4	5

$9 \times 3 = 27$
$-(4+5) = -9$
$\dfrac{}{18}$

Similarly,

8	3
4	6

$8 \times 3 = 24$
$-(4+6) = 10$
$\dfrac{}{14}$

21. **(2)** The best relation among men, fathers and teachers is as shown below :

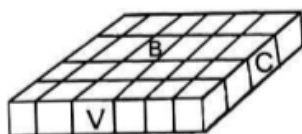Here, all fathers are men and some fathers can be teachers. So, option (2) is correct answer.

22. **(4)** As, guitar is for music. Similarly, book is for knowledge.

23. **(2)** Given that, Reena > Rita > Zoha

$\quad\quad$ x + 2 $\quad$ x $\quad\quad$ x – 3

According to the question, $2x - 1 = 3(x - 5)$

$2x - 1 = 3x - 15$

$x = 14$ years

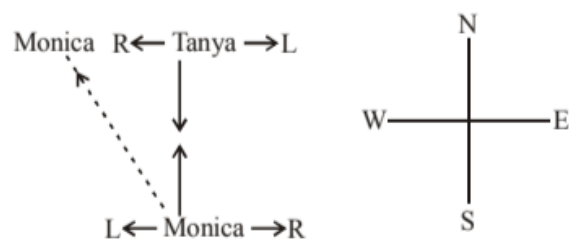Therefore, the current age of Rita is 14 years.

Sol. (24–26) According to the given information,

Here,

B → butter, scotch cream

C → Chocolate and

V → Vanilla cream

24. **(3)** 12 cake pieces are there which have only two types of coating of cream.

25. **(2)** 8 cake pieces will have only one type of coating of cream.

26. **(3)** 16 cake pieces will be available for others.

27. **(1)** On the basis of given information, the direction diagram of Tanya and Monica is as following :
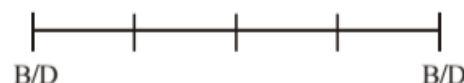

So, it is clearly shown that monica was facing north direction. Hence, option (1) is correct answer.

28. **(3)** From the given question :
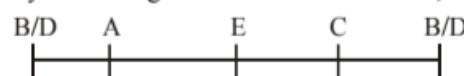

A is sitting next to E.

From statement I,

B/D $\quad\quad\quad\quad\quad\quad\quad\quad\quad$ B/D

From statement II,

C is not sitting next to A.

By combining all the above information, we get

B/D $\quad$ A $\quad\quad\quad$ E $\quad\quad$ C $\quad\quad$ B/D

So, E is sitting between A and C.

29. **(1)** We have four horses in one race

Divide 16 horses in four groups

Now, two conditions are there

I – If both the fastest are in same group and

II – If one is in one group and 2nd is in other group.

To determine the fastest, four races in groups now conduct 5th race between all groups toppers so we can determine the fasters.

Now, in 6th race take 2nd of 5th race, take rest 3 of the group from which the fastest horse.

So, the topper of 6th will be 2nd topper of 16.

30. **(2)** The pattern of the series is as follows :

$\quad$ b $\quad$ c $\quad$ e $\quad$ g $\quad$ k $\quad$? $\quad$ q $\quad$ s

$\quad$ 2 $\quad$ 3 $\quad$ 5 $\quad$ 7 $\quad$ 11 $\quad$ 13 $\quad$ 17 $\quad$ 19

series of prime no. 13 = m.

So, m will replaces the question mark.

31. **(3)** Option (3) will replaces the question mark.

32. **(4)** Here, $5 \to 3 \to 2$
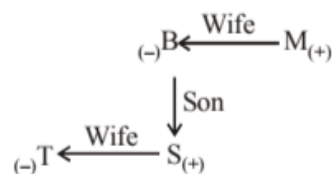
$1 \to 4 \to 6$

So, opp. of 2 is 6.

33. **(2)** The pattern of the series is as follows:

$2, 10, 30, 68, ..., 222$

$1^3 + 1, 2^3 + 2, 3^3 + 3, 4^3 + 4, 5^3 + 5$
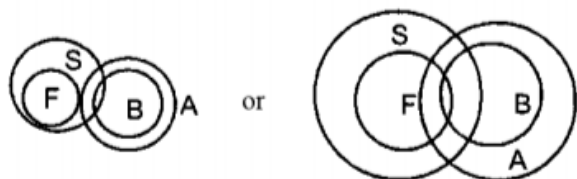
$5^3 + 5 = 125 + 5 = 130$

34. (3) Given, $T - S \times B - M$
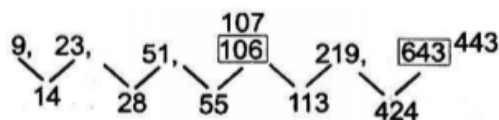

S is son of B, not daughter.

So, option (3) is correct answer.

35. (1) The venn diagram is as follows :

So, either I or II & III follows. Hence, option (1) is correct.

36. (3) The pattern of the series is as follows :

So, option (3) is correct answer.

37. (4) The water image of the characters as shown below :

S U P E 2 5 4 7 D L R

------------   Characters water image
2 ∩ b E S 2 �∀ ⅃ D ⌐ ꓤ

So, option (4) is correct answer

38. (4) As, $R > V$

$A > P$ (Parul lies between R and A)

$S > P$

          $A > P > R > V$

In case – I

$S > A > P > R > V$

In case II

$A > S > P > R > V$.

So, Parul is elder to Veena. Hence, option (4) is correct answer.

39. (3) As, $1^2 + 5^2 + 7^2 = 75$
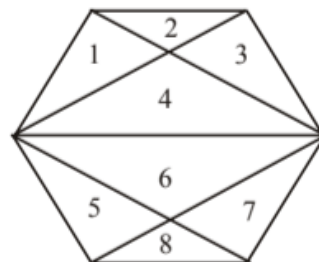
and, $9^2 + 7^2 + 8^2 = 194$

So, $8^2 + 3^2 + 4^2 = 89$

40. (1) Option figure (1) is correct answer when it is folded

41. (2) For 8 beats it takes 7 intervals

7 interval – 8 sec.

1 interval – $\dfrac{8}{7}$ sec.

10 intervals – $\dfrac{8}{7} \times 10 = 11.43$ second

42. (3) As,

As,

$\dfrac{\text{Pieces}}{4}$

(1,2,3,4) (5,6,7,8) (1,4,5,6) (3,4,5,6) (7,6,4,3) (1,4,6,7)

$\dfrac{\text{Pieces}}{3}$ (1,4,6) (4,6,5) (3,4,6) (4,6,7)

$\dfrac{\text{Pieces}}{2}$ (4,6)

So, there are 11 quadilaterals.

43-45. According to the given information, the arrangement of six boys is as following :

BOYS	GAMES					
	Foot-ball	Cri-cket	Tennis	(Tallest) Kabaddi	Squash	(Shortest) Vollyball
Tarun	✓	×	×	×	×	×
Umesh	×	×	×	✓	×	×
Prem	×		×			×
Kamal	×		×			×
Ramesh	×	×	×	×	×	✓
Shyam	×		×			×

According to their heights : $U > K > T > P > S > R$

43. (4) Umesh plays Kabaddi among them

44. (1) According to the descending order of their heights, Prem will be at fourth place.

45. (1) We can't determine that who plays tennis.

46. (3) The pattern of the series is as follows.

$\dfrac{121}{11^2} \dfrac{81}{9^2} \; 99(10^2 - 1), \quad \dfrac{100}{10^2} \dfrac{64}{8^2} \; 80(9^2 - 1), \quad \dfrac{81}{9^2} \dfrac{49}{7^2} \; 63(8^2 - 1),$

$\dfrac{64}{8^2} \dfrac{36}{6^2} \; 48(7^2 - 1), \quad \dfrac{49}{7^2} \dfrac{25}{5^2} \; 35(6^2 - 1)$

So, the next term will be 492 535.

47. (3) As, In 1st figure : $(6 - 5)^3 + 1^2 \Rightarrow 2,$

In 2nd figure : $(12 - 10)^3 + 2^2 \Rightarrow 12$ and

In 4th figure : $(24 - 20)^3 + 4^2 \Rightarrow 80$

Similarly, In 3rd figure : $(18 - 15)^3 + 3^2 \Rightarrow 36$

So, 36 will replace the question mark.

48. (3) According to the given coding language:

$\text{S}\ \text{T}\ \boxed{\text{A}}\ \text{T} \rightarrow \underline{\theta}\ \delta\ \underline{\theta}\ ⓨ$ ...(i)

$\text{R}\ \boxed{\text{A}}\ \text{T} \rightarrow \boxed{\delta}\ \underline{\theta}\ \beta$ ...(ii)

$Ⓢ\ \boxed{\text{A}}\ \text{Y} \rightarrow \varepsilon\ ⓨ\boxed{\delta}$ ...(iii)

From the above coding language,

→ T is common in (i) and (ii), and the code for T is θ

→ A is common in (ii) and (iii), and the code for A is δ.

→ S is common in (i) and (iii), and the code for S is γ.

So, T → θ

   R → β

   A → δ

   Y → ε

Therefore, from the given options, only option (3) is correct answer.

49. (2) Here, $20 \times 25 = 500$

$500 =$ First 5 days   Second 5 day

10×5 15×5

50   75

Third 5 day   Fourth 5 day

20×5 25×5

100   125

Fifth 5 day

30×5

150

$50 + 75 + 100 + 125 + 150 = 500$

So, 25 days the work will be completed.

50. (3) Here, length of diagonal $= \sqrt{l^2 + h^2 + b^2}$

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