NATIONAL TALENT SEARCH EXAMINATION (NTSE-2021) STAGE -1

STATE : KARNATAKA PAPER : MAT

Date: 25/01/2021 ***Code: K-10***

Max. Marks: 100 **SOLUTIONS** **Time allowed: 120 mins**

1. Eleven students a, b, c, d, e, f, g, h, i, j and k are sitting in a row of class facing the teacher:

i. 'd' who is to the immediate left of 'f', is second to the right of 'c'.

ii. 'h' who is to the immediate left of 'd', is third to the right of 'i'.

iii. 'a' is second to the right of 'e' and 'e' is at the end.

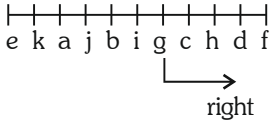
iv. 'j' is the immediate neighbour of 'a' and 'b' and third to the left of 'g'.

The groups of friends who are sitting to the right of 'g' is

(1) i, b, j, a (2) i, c, d, f (3) c, h, d, f (4) c, h, d, e

Ans. ***(3)***

Sol.



c, h, d, f

2. p, q, r, s and t are seated around a circular table facing the centre:

i. 't' sits second to the right of 's'.

ii. 'r' sits second to the right of 't'.

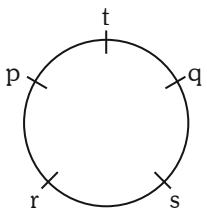
iii. 'p' is not an immediate neighbour of 's'

Who sits between 's' and 't':

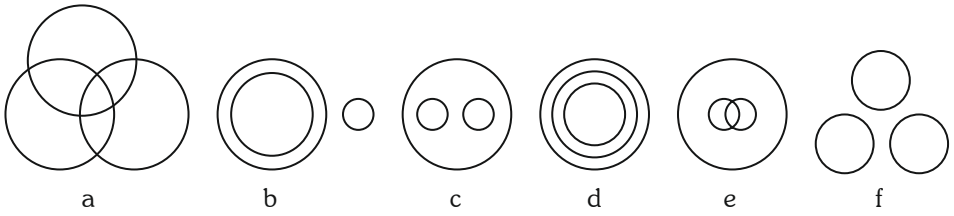
(1) q (2) r (3) p (4) t

Ans. ***(1)***

Sol.



3. The following questions is based on figures given below. Each circle represents one item. Match the figure with items in the question on the basis of their relationship.

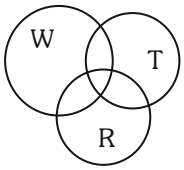


Writers, Teachers, Researchers :

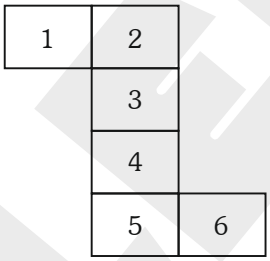
(1) f (2) d (3) c (4) a

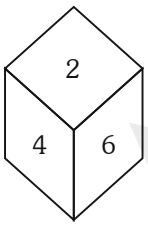
Ans. ***(4)***

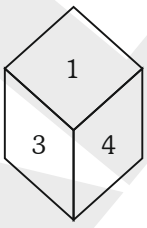
Sol.

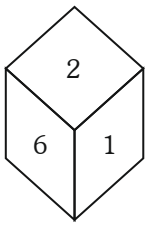


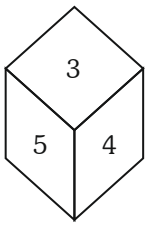
4. When the given figure is folded as a cube, the cube formed is:



(1) 

(2) 

(3) 

(4) 

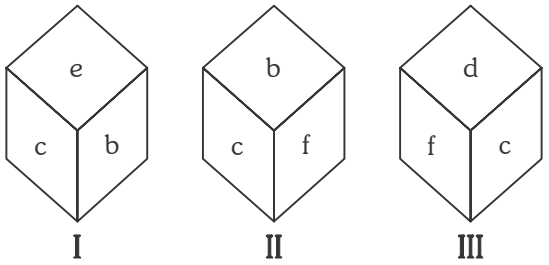
Ans. ***(2)***

Sol. $1 \Leftrightarrow 6$

$2 \Leftrightarrow 4$

$3 \Leftrightarrow 5$

5. Three different positions of the same dice are shown below. The letter on the face opposite the face showing 'c' is:



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

Ans. ***(4)***

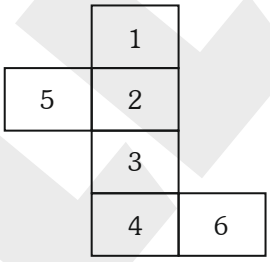
Sol. I $\Rightarrow$ c $\overset{\times}{\rightarrow}$ e $\overset{\times}{}$ b

II $\Rightarrow$ c $\overset{\times}{\rightarrow}$ b $\overset{\times}{}$ f

III $\Rightarrow$ c $\overset{\times}{\rightarrow}$ d $\overset{\times}{}$ f

So c $\Leftrightarrow$ a

6. A sheet of paper as shown in the figure is folded, so as to form a cube. Select the correct answer from the four alternatives in which the pairs of faces are opposite:



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

Ans. ***(1)***

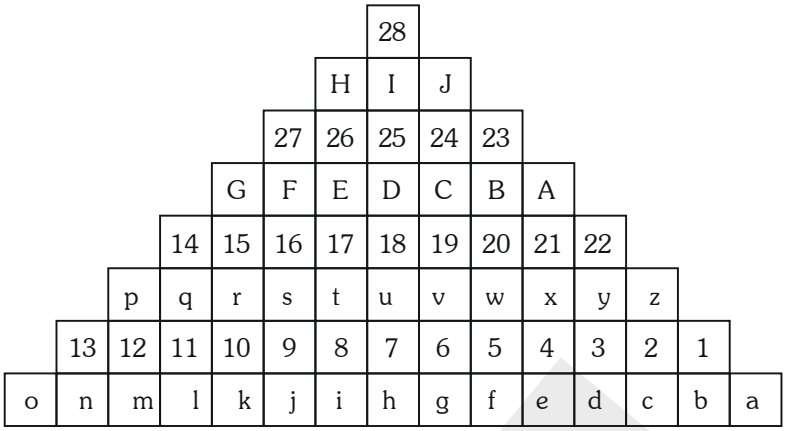
Sol. 5 $\Leftrightarrow$ 6

2 $\Leftrightarrow$ 4

1 $\Leftrightarrow$ 3

Directions: (Questions: 7 - 9)

The following questions are based on the numbers and letters arranged in the pyramid pattern. Study the pattern and complete the given analogy.



						28								
					H	I	J							
				27	26	25	24	23						
			G	F	E	D	C	B	A					
		14	15	16	17	18	19	20	21	22				
	p	q	r	s	t	u	v	w	x	y	z			
13	12	11	10	9	8	7	6	5	4	3	2	1		
o	n	m	l	k	j	i	h	g	f	e	d	c	b	a

7. m k t 16 : i g x 20 : : l j u 17 : ?

(1) e g t 18 (2) h j q 15 (3) c v e 20 (4) h f y 21

Ans. ***(4)***

Sol. h f y 21

8. F j a 1 : H t z 22 ; : A e o 13 : ?

(1) J v p 14 (2) H t p 14 (3) J v z 22 (4) I u q 15

Ans. ***(1)***

Sol. J v p 14

Make the pyramid.

9. p 27 v : z 23 t : : ? : a 22 g :

(1) A 28 g (2) p 27 v (3) o 14 i (4) t 23 z

Ans. ***(3)***

Sol. p 27 v : z 23 t : : ? : a 22 g

↓

o 14 i

10. The date of birth of a person 'Y' is 4th April 2001. Then 'Y' was born on :

(1) Sunday (2) Monday (3) Tuesday (4) Wednesday

Ans. ***(4)***

Sol. 4th April 2001

(1) 4 + 01 = 05

(2) 01/4 = 0

(3) 5 + 0 + 6 + 6

↑

Month code

$\Rightarrow 17$

(4) $\frac{17}{7}$ = 2 weeks + 3 odd days

↓

Wednesday

11. The total age of 'a', 'b' and 'c' is 93 years. Ten years ago the ratio of their ages was 2 : 3 : 4. Then the present age of 'c' is

(1) 18 years (2) 28 years (3) 38 years (4) 48 years

Ans. ***(3)***

Sol. a + b + c = 93

(a - 10) : (b – 10) : (c – 10) = 2 : 3 : 4 years

63 = 14 : 21 : 28

Present age of C = 28 + 10 = 38 yrs.

12. Ratio of Ravi's age to Raju's age is equal to 4 : 3. Ravi will be 26 years old after 6 years. The present age of Raju is:

(1) 15 years (2) 14 years (3) 13 years (4) 12 years

Ans. ***(1)***

Sol. Ravi age = x

Raju's age = y

$\frac{x}{y} = \frac{4}{3}$

x + 6 = 26

x = 20

$\frac{20}{y} = \frac{4}{3}$

$y = \frac{20 \times 3}{4} = 15$ years

13. The ages of two persons differ by 18 years. 12 years ago the elder one was 4 times as old as the younger one. The present age of the elder one is :

(1) 24 years (2) 36 years (3) 48 years (4) 60 years

Ans. ***(2)***

Sol. younger = x

elder = x + 18

$4(x - 12) = (x + 18 - 12)$

①oung ②lder

$4x - 48 = x + 6$

$4x - x = 48 + 6$

$3x = 54$

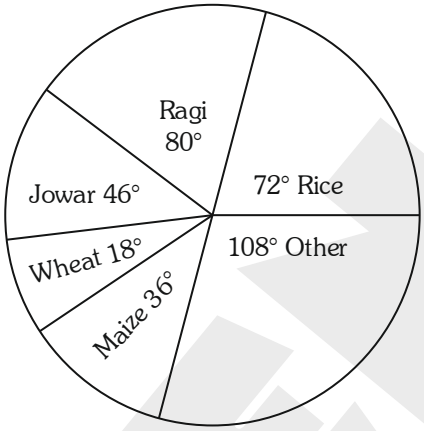
$x = \frac{54}{3} = 18$

young = 18

elder = 18 + 18 = 36

Direction : (Questions : 14 - 16)

Distribution of areas under various food crops are given in the pie chart. Study the chart and answer the questions.



14. The pair of crops which contributes to 15% of the total area under the food crops:

(1) Jowar, Rice (2) Wheat, Maize (3) Jowar, Wheat (4) Ragi, Maize

Ans. ***(2)***

Sol. Ragi $= \frac{80}{360} \times 100 = 22.22\%$

Rice $= \frac{72}{360} \times 100 = 20\%$

Other $= \frac{108}{360} \times 100 = 30\%$

Maize $= \frac{36}{360} \times 100 = 10\%$

Wheat $= \frac{18}{360} \times 100 = 5\%$

Jowar $= \frac{46}{360} \times 100 = 12.77\%$

15. If the total area under wheat is 5.4 million acres, then the area under rice in million acres:

(1) 21.6 (2) 10.8 (3) 32.4 (4) 7.6

Ans. (1)

Sol. $\frac{5x}{100} = 5.4$ m.a.

$x = 108$ m.a.

$\text{rice} = \frac{20x}{100} = \frac{20 \times 108}{106} = 21.6$

16. If the production of rice is 2 times that of wheat, then the ratio of yield/acre of rice and wheat is :

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

Ans. (3)

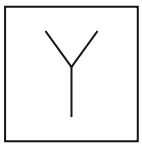
Sol. rice : 2 wheat

$\frac{2x}{20\% \text{ of } y} : \frac{x}{5\% \text{ of } y}$

10 : 20 = 1 : 2

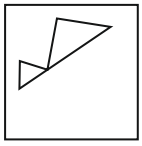
Directions : (Questions : 17-18)

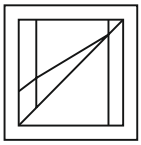
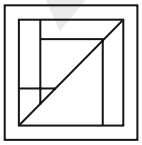
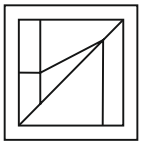
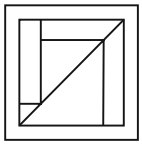
The problem figure in the following questions is hidden in the given four alternatives in every question. Find the alternative in which the problem figure is hidden

17. 

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

Ans. (1)

18. 

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

Ans. (4)

Directions : (Questions : 19 - 20)

two matrices containing letters are given below . The rows and columns are numbered 0 to 4 in matrix 1 and 5 to 9 in matrix II. Each letter from these matrices are represented by its row number and the next by its column number.

	0	1	2	3	4
0	P	W	R	M	A
1	M	A	P	W	R
2	A	P	W	R	M
3	W	R	M	A	P
4	R	M	A	P	W

Matrix - I

	5	6	7	8	9
5	S	T	L	K	D
6	K	D	S	T	L
7	D	S	T	L	K
8	T	L	K	D	S
9	L	K	D	S	T

Matrix - II

19. The Set of numbers which represents the word PALM is

(1) 12, 73, 21, 43 (2) 21, 33, 58, 03 (3) 34, 42, 86, 24 (4) 12, 20, 87, 32

Ans. ***(3)***

Sol. P A L M
34 42 86 24

20. The set of numbers which represents the word WARD is

(1) 01, 42, 43, 59 (2) 30, 33, 41, 88 (3) 44, 20, 31, 98 (4) 13, 04, 40, 75

Ans. ***(4)***

Sol. W A R D
13 04 40 75

Directions : (Questions : 21 - 24)

Complete the given number analogy by choosing the correct answer from the four alternatives given below.

21. 31 : 69 : : 351 : ?

(1) 496 (2) 511 (3) 521 (4) 707

Ans. ***(3)***

Sol. $3^3 + 4 : 4^3 + 5 : : 7^3 + 8 : 8^3 + 9 = 521$

22. 7124 : 48 : : 3218 : ?

(1) 27 (2) 45 (3) 57 (4) 75

Ans. ***(2)***

Sol. $(7 + 1) \times (2 + 4) : : (3 + 2) \times (1 + 8) = 45$

23. 24 : 21 : : 336 : ?

(1) 555 (2) 170 (3) 290 (4) 105

Ans. ***(4)***

Sol. $3^3 - 3 : 3(3 \times 2 + 1) : : 7^3 - 3 : 7(7 \times 2 + 1) = 105$

24. 10 : 115 : 22 : : ? : 204 : ?

(1) 12, 26 (2) 14, 30 (3) 15, 27 (4) 18, 19

Ans. ***(1)***

Sol. $10 : \left[\left(\frac{10}{2}\right)^3 - 10\right] : 2(10) + 2 : : 12 : \left[\left(\frac{12}{2}\right)^3 - 12\right] : 2(12) + 2$

$\therefore 12 : 204 : 26$

Directions : (Questions : 25-27)

The words are given under column - I. Their codes are given under column - II, The order of coding for the letters of word in the column - I, do not follow the same order in the column - II. Find the codes from the letters of words in column - I and find the codes for the given words in questions.

	Column - I	Column - II
a.	TRY	rkm
b.	HEN	pab
c.	TAP	tms
d.	NET	amp
e.	TILE	bpdm
f.	GEAR	pkns

25. TRIANGLE :

(1) kmbsandp (2) mkbsandp (3) kmpsndap (4) mkbsanpd

Ans. ***(Bonus)***

Sol. Bonus

26. LEATHER :

(1) dpsmbpk (2) pdsmbpk (3) spdmbpk (4) dpmsbkp

Ans. ***(Bonus)***

Sol. Bonus

27. PATIENT:

(1) tsbmpam (2) asmbpmt (3) smtbpam (4) tsmbpam

Ans. ***(Bonus)***

Sol. Bonus

Directions : (Questions : 28 - 29): Ramu's bag cannot carry more than twelve books. He has to carry atleast one book each of mathematics, social, map and graph. For each mathematics book he has to carry two or more graph books,and for each social book, he has to carry two or more map books. He earns 4,3,2 and 1 point for carrying each mathematics, social, map and graph book respectively in his bag. He has to earn maximum points. This he can do by carrying proper combination of books.

28. The number of social books he would carry is :

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

Ans. ***(3)***

Sol.

$$\underset{(3)}{\text{Social}} + \underset{(4)}{\text{Maths}} + \underset{(2)}{\text{Map}} + \underset{(1)}{\text{Graph}}$$

So

$3+2+2$
$3+2+2 \qquad 4+1+1$
$3+2+2$

$\text{Total} = 12 \text{ books}$

No. of social books = 3

Maximum no. of point will be 27

29. The maximum points that he can earn by selecting the combination of books is:

(1) 26 (2) 27 (3) 28 (4) 29

Ans. ***(2)***

Sol.

$$\underset{(3)}{\text{Social}} + \underset{(4)}{\text{Maths}} + \underset{(2)}{\text{Map}} + \underset{(1)}{\text{Graph}}$$

So

$3+2+2$
$3+2+2 \qquad 4+1+1$
$3+2+2$

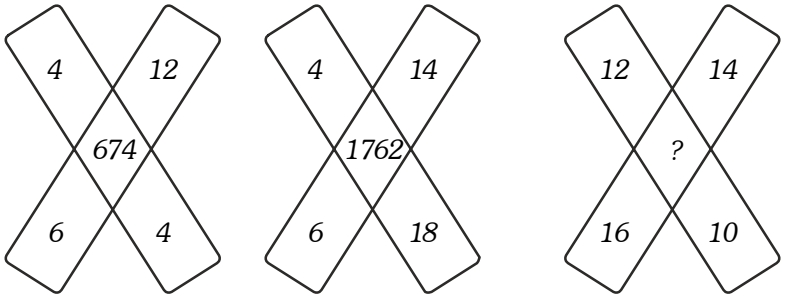
$\text{Total} = 12 \text{ books}$

No. of social books = 3

Maximum no. of point will be 27

Directions : (Questions : 30 - 32): In the questions given below the numbers in the figures are related. Identify their relationships and find the missing numbers in the given figures.

30.



(1) 2502 (2) 2702 (3) 2603 (4) 2707

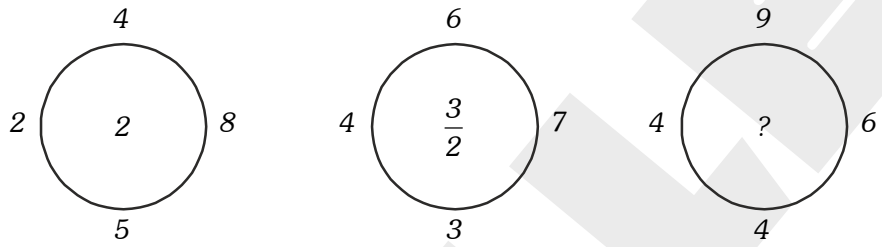
Ans. ***(2)***

Sol. $(4+12+6+4)^2-2=674$

$(4+14+6+18)^2-2=1762$

$(12+10+14+16)^2-2=2702$

31.

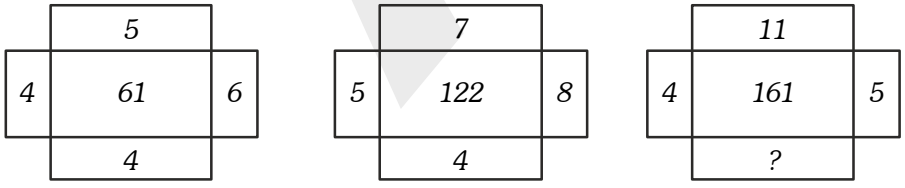


(1) $\frac{9}{4}$ (2) 3 (3) $\frac{7}{2}$ (4) 7

Ans. ***(1)***

Sol. $\frac{4\times8\times5}{2\times5\times8}=2$ $\therefore\frac{9\times6\times4}{4\times4\times6}$ $\Rightarrow\frac{9}{4}$

32.



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

Ans. ***(3)***

Sol. $5^2 + 6^2 + 4^2 - 4^2 = 61$

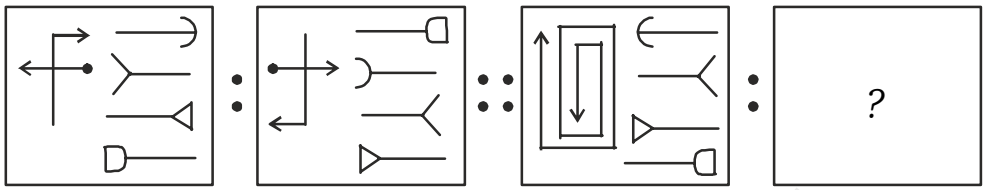
$7^2 + 8^2 + 5^2 - 4^2 = 122$

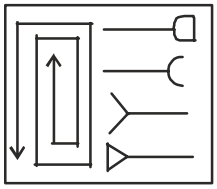
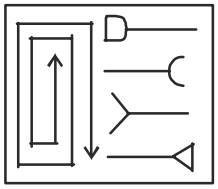
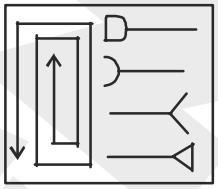
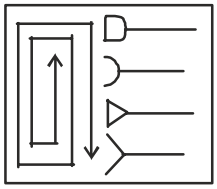
$11^2 + 5^2 + 4^2 - x^2 = 161$

$x = 1$

Directions : (Questions : 33 - 35): Complete the given figure analogy by choosing the correct answers from the given alternative.

33.

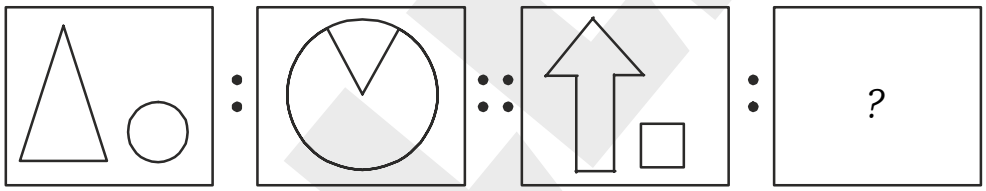


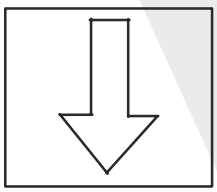
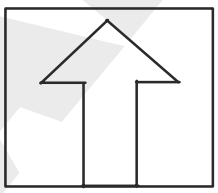
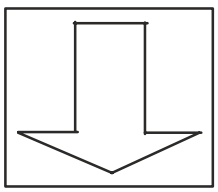
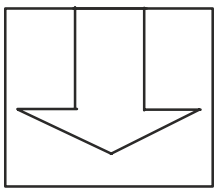
(1) 
(2) 
(3) 
(4) 

Ans. ***(2)***

Sol. By observation

34.

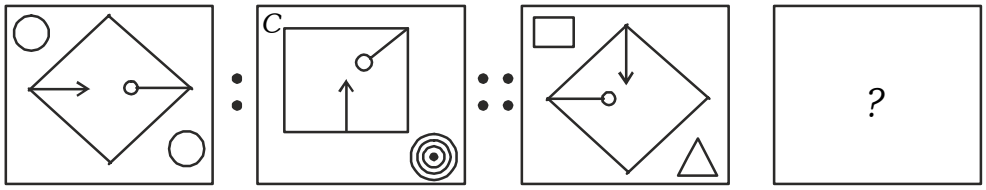


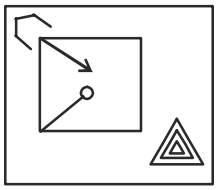
(1) 
(2) 
(3) 
(4) 

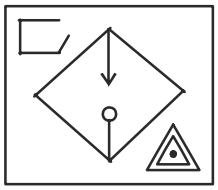
Ans. ***(4)***

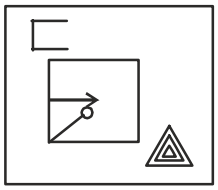
Sol. By observation

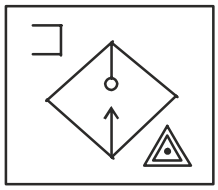
35.



(1) 

(2) 

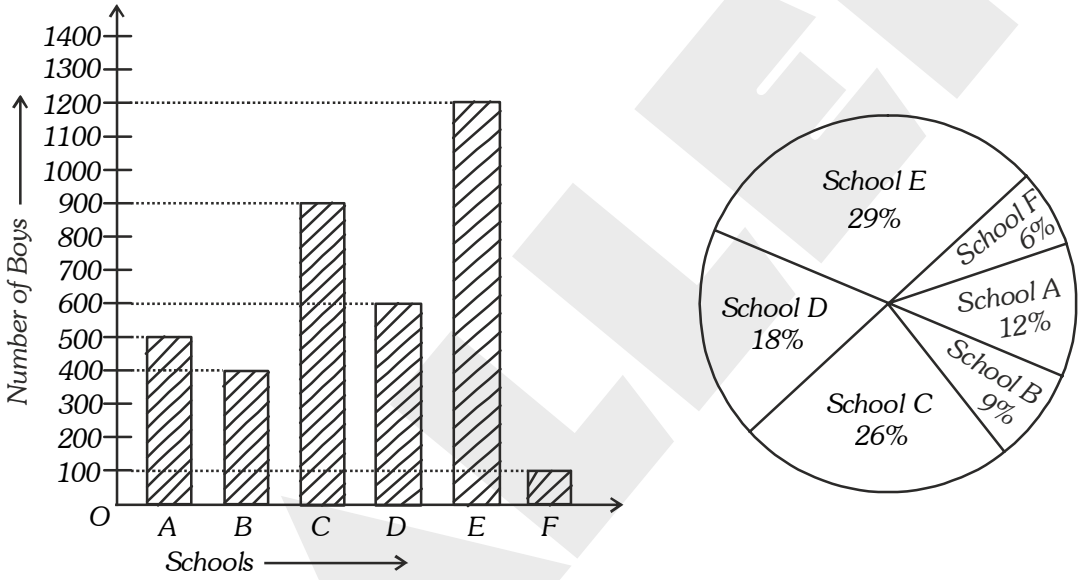
(3) 

(4) 

Ans. ***(3)***

Sol. By observation

Directions : (Questions : 36 - 37): Study the given Pie-chart and Bar diagram and answer the following questions : Number of boys in each school out of 6000 students.



36. The sum of the number of girls in school C, the number of girls in school E and the number of boys in school D together is :

(1) 1700 (2) 1900 (3) 1600 (4) 1800

Ans. ***(4)***

Sol. No. of girls in school C

$= 26\%$ of 6000 - No. of Boys in C

$= 26 \times 60 - 900$

$= 1560 - 900$

$= 660$

No. of girls in school E

$= 29\%$ of 6000 - No. of Boys in E

$= 29 \times 60 - 1200$

$= 1740 - 1200$

$= 540$

No. of Boys in school D = 600

So $660 + 540 + 600 = 1800$

37. The ratio of the number of boys in school C, the number of girls in school B and the total number of students in school E is :

(1) 45 : 7 : 97 (2) 43 : 9 : 97 (3) 45 : 7 : 87 (4) 43 : 9 : 87

Ans. ***(3)***

Sol. No. of boys in school C $\longrightarrow 900$

No. of girls in school $\longrightarrow 9\%$ of 6000 - No. of Boys in $8 \Rightarrow 140$

Total No. of Students in school E = 29% of 6000 = 1740

So ratio will be 900 : 140 : 1740 = 45 : 7 : 87

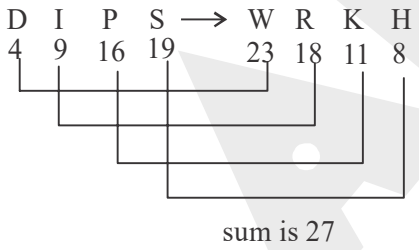
Directions : (Questions : 38 - 40): In the following questions, a word is written according to some code. In the same coded language identify the code of the word given below.

38. If the word DIPS is written as WRKH, then the word HOST can be coded as:

(1) SHLG (2) SHGL (3) SLHG (4) SLGH

Ans. ***(3)***

Sol.



So HOST will be coded as S L H G

39. If POND is coded as NKHV, then the word HEAR can be coded as :

(1) GHIJ (2) HGIZ (3) FAUJ (4) FACL

Ans. ***(3)***

Sol.

H	E	A	R
-2 ↓	-4 ↓	-6 ↓	-8 ↓
F	A	U	J

40. If the word FATHER is written as HC VJGT, then MOTHER can be coded as:

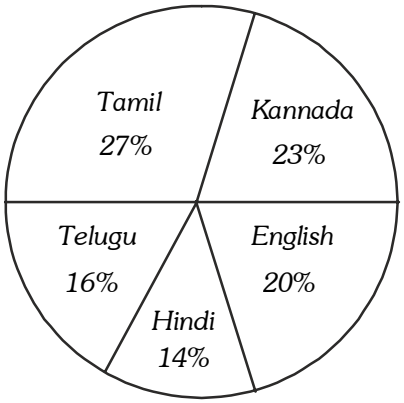
(1) OQVJGT (2) KOTHER (3) OQJGTV (4) KMOQSU

Ans. ***(1)***

Sol.

M	O	T	H	E	R
↓+2	↓+2	↓+2	↓+2	↓+2	↓+2
O	Q	V	J	G	T

Directions : (Questions : 41 - 43): Study the following Pie-chart and the table. Answer the questions based on them.Total books in a library.



Books in bad condition	
Type of book	Percentage
Kannada	2
English	1
Hindi	6
Telugu	4
Tamil	8

41. If the total number of books in the library is 10,000, then the total number of Hindi books that are in bad condition is :

(1) 82 (2) 84 (3) 90 (4) 80

Ans. ***(2)***

Sol. Hindi books = 14 % of 10000 = 1400

6% are Bad = 6% of 1400 = $= 6 \times \frac{1400}{100} \Rightarrow 84$

42. If the number of Kannada books in bad condition is 92, then total number of English books in the library will be :

(1) 1200 (2) 1600 (3) 4800 (4) 4000

Ans. ***(4)***

Sol. Total no. of books = x

23% of $x = \frac{23x}{100}$ (no. of kannada books)

Bad condistion 2% of 23x = 92

$2 \times \frac{23x}{10^4} = 92$

$x = \frac{92 \times 10^4}{23 \times 2} \Rightarrow \frac{40000}{2} = 20000$

No. of English books = $\frac{20}{100} \times 20000 \Rightarrow 4000$

43. If the total number of books in bad condition is 860, then total number of books in the library will be :

(1) 20,000 (2) 8600 (3) 4300 (4) 43,000

Ans. ***(1)***

Sol. Let the total no. of books be x.

then

$$\underbrace{2\%\text{ of }(23\%\text{ of x})}_{\text{Kannada}} + \underbrace{1\%\text{ of }(20\%\text{ of x})}_{\text{English}} + \underbrace{6\%\text{ of }(14\%\text{ of x})}_{\text{hindi}} + \underbrace{4\%\text{ of }(16\%\text{ of x})}_{\text{Telugu}} + \underbrace{8\%\text{ of }(27\%\text{ of x})}_{\text{Tamil}}$$

$$\Rightarrow \frac{2}{100} \times \frac{23}{100} \times x + \frac{1}{100} \times \frac{20}{100} \times x + \frac{6}{100} + \frac{14}{100} \times x + \frac{4}{100} \times \frac{16}{100} \times x + \frac{8}{100} \times \frac{27}{100} \times x = 860$$

$$\Rightarrow \frac{46x}{10^4} + \frac{20x}{10^4} + \frac{84x}{10^4} + \frac{64x}{10^4} + \frac{216x}{10^4} = 860$$

$$\Rightarrow \frac{430x}{10^4} = 860$$

$$x = \frac{860}{430} \times 10^4 = 2 \times 10^4$$

$x = 20,000$

44. If 1st January 2019 is Tuesday, then 31st December 2021 will be :

(1) Sunday (2) Friday (3) Saturday (4) Tuesday

Ans. ***(2)***

Sol. 1st Jan 2019 $\longrightarrow$ Tuesday

1st Jan 2020 $\longrightarrow$ Wednesday

1st Jan 2021 $\longrightarrow$ Friday

31st Jan 2021 $\longrightarrow$ Friday

45. The date which cannot represent second Saturday of any month is :

(1) 7 (2) 8 (3) 9 (4) 10

Ans. ***(1)***

Sol. $1 \longrightarrow 8$

$2 \longrightarrow 9$

$3 \longrightarrow 10$

1st saturday 2nd saturday

So 7th cannot be 2nd saturday

46. The number of years in which February 29 appears between 1901 and 2001 years is :

(1) 75 (2) 50 (3) 26 (4) 25

Ans. ***(4)***

Sol. Total no. of years $\longrightarrow$ 100

So No. of leap years $\longrightarrow \frac{100}{4} = 25$

so 25 times 29th of February will appear.

Directions : (Questions : 47 - 49): In each of the following questions, numbers / letters have been given, out of which three are alike in some manner and the fourth one is different. Choose out the odd one.

47. (1) DW (2) GT (3) KP (4) HR

Ans. ***(4)***

Sol. HR is odd one out

since all others have sum of 27

DW $\longrightarrow 4 + 23 = 27$

GT $\longrightarrow 7 + 20 = 27$

KP $\longrightarrow 11 + 16 = 27$

HR $\longrightarrow 8 + 18 = 26$

48. (1) 243 (2) 6561 (3) 32 (4) 1024

Ans. ***(2)***

Sol. $(1) = 243 = 3^5$

$(2) 6561 = 3^8 = 9^4$

$(3) 32 = 2^5$

$(4) 1024 = 2^{40} = 4^5$

49. (1) E J O T (2) Y E J O (3) T Y E J (4) O J E Y

Ans. ***(3)***

Sol. All options contain two vowels a part from 3rd option

Directions : (Questions : 50 - 52): Study the following information carefully and answer the following questions.

1) 'b' and 'e' are experts in Kannada and Hindi

2) 'a' and 'b' are experts in Hindi and Tamil

3) 'a', 'd' and 'c' are experts in Tamil and Bangali

4) 'c' and 'a' are experts in Tamil and Sanskrit

5) 'd' and 'e' are experts in Kannada and Bangali

50. Expert in Kannada, Tamil and Bangali is:

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

Ans. ***(4)***

Sol. Kannada $\longrightarrow$ b, *e*, d

Hindi $\longrightarrow$ b, *e*, d

Tamil $\longrightarrow$ a, b, d, c

Bengali $\longrightarrow$ a, d, c, *e*

Sanskrit $\longrightarrow$ a, c

51. Expert in Hindi, Bangali and Kannada is :

(1) b (2) *e* (3) a (4) c

Ans. ***(2)***

52. Expert in Kannada, Hindi and Tamil is :

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

Ans. ***(1)***

53. 'a' and 'b' together can complete a piece of work in 9 days. 'a' alone can complete the work in 36 days. The number of days 'b' alone take to complete the work :

(1) 18 (2) 30 (3) 12 (4) 14

Ans. ***(3)***

Sol. $\frac{1}{a}+\frac{1}{b}=\frac{1}{9}$

$\frac{1}{a}=\frac{1}{36}$

$\frac{1}{b}=\frac{1}{9}-\frac{1}{36}$

$\frac{4-1}{36}=\frac{3}{36}=\frac{1}{12}$

b can complete in 12 days.

54. If the sum of one-third of a number and half of the same number exceeds two-third of the number by 5, then two-fifth of the number is equal to :

(1) 12 (2) 15 (3) 18 (4) 30

Ans. ***(1)***

Sol. Let the number be x

$\frac{x}{3}+\frac{x}{2}=\frac{2x}{3}+5$

$\frac{5x}{\cancel{6}^{2}}=\frac{2x+15}{\cancel{3}}$

$5x = 4x + 30$

$x = 30$

So, $\frac{2}{5}$ of $x=\frac{2}{\cancel{5}}\times\cancel{30}^{6}=12$

55. A fruit seller bought 72 oranges at ₹600. He sold 50 of them at ₹11 each and the remaining at ₹236. His profit in this business is :

(1) ₹786 (2) ₹600 (3) ₹442 (4) ₹186

Ans. ***(4)***

Sol. CP of 72 oranges = ₹600

SP of 72 oranges $= 11\times 50 =$ ₹500

SP of remaining (61) oranges = ₹236

Total SP of oranges $= 236 + 550 =$ ₹786

so profit = SP – CP

$\Rightarrow$ 786 – 600

$\Rightarrow$ ₹186

Directions: (Questions : 56 - 58) :

Study the given information carefully and answer the following questions :

A number / letter / word re-arrangement machine, when given an input re-arranges them following a particular rule in each step. The following is an illustration of input and output steps of re-arrangement.

Input	A	B	C	D	E
Step 1 Output	A	C	B	E	D
Step 2 Output	D	E	B	C	A
Step 3 Output	D	B	E	A	C

56. If the input is Kit, My, Leo, Ji, Sum, then the step 3 output will be :

(1) Kit Ji Sum My Leo (2) Ji Sum My Kit Leo

(3) Ji My Sum Kit Leo (4) Ji My Kit Leo Sum

Ans. ***(3)***

Sol. Input : Kit My Leo Ji Sum

Step I : Kit Leo My Sum Ji

Step II : Ji Sum My Leo Kit

Step III : Ji My Sum Kit Leo

57. If the step 3 output is 40, 33, 12, 21, 68, then the input is :

(1) 21 68 33 12 40 (2) 21 33 68 40 12

(3) 40 33 21 12 68 (4) 21 40 12 68 33

Ans. ***(2)***

Sol. Step 3: 40, 33, 12, 21, 68

$\therefore$ Input : 21 33 68 40 12

58. If the step 2 output is Sot, Yin, Mens, Tog, Guv then the step 1 output will be :

(1) Sot Mes Yin Guv Tog (2) Sot Mes Tog Yin Guv

(3) Guv Mes Tog Sot Yin (4) Guv Tog Mes Yin Sot

Ans. ***(4)***

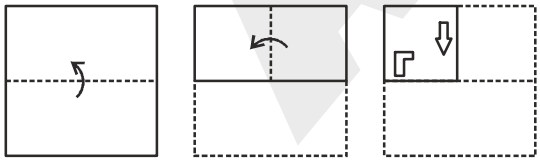
Sol. Step 2: Sot, Yin, Mens, Tog, Guv

$\therefore$ Step 1: Guv Tog Mes Yin Sot

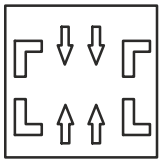
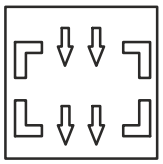
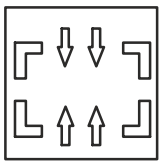
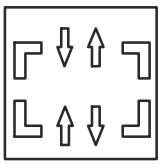
Directions: (Questions : 59 - 60) :

Following questions contain a set of three figures x, y and z showing a sequence of folding of a piece of square paper. Fig 'z' shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the completely unfolded form of fig (z).

59.

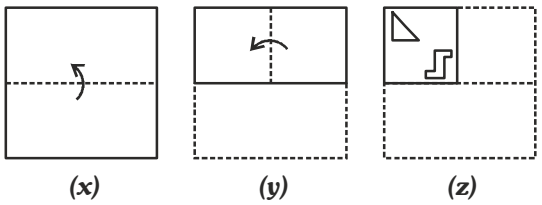


(x) *(y)* *(z)*

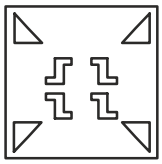
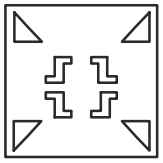
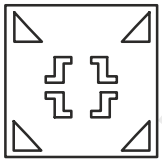
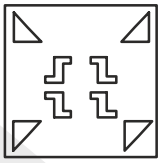
(1)  (2)  (3)  (4) 

Ans. ***(3)***

Sol. By observation.

60. 

(x) *(y)* *(z)*

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

Ans. ***(2)***

Sol. By observation.

Directions: (Questions : 61 - 63) :

The order of the letters that needs to come in the boxes to complete a certain pattern is :

61. BY DW GT ☐

(1) JP (2) JQ (3) KQ (4) KP

Ans. ***(4)***

Sol. KP

B + 2 = D + 3 = G + 4 = K.

62. L ☐ MN ☐ K ☐ N ☐ KM

(1) MLML (2) KLML (3) NMLL (4) KMML

Ans. ***(2)***

Sol. KLML

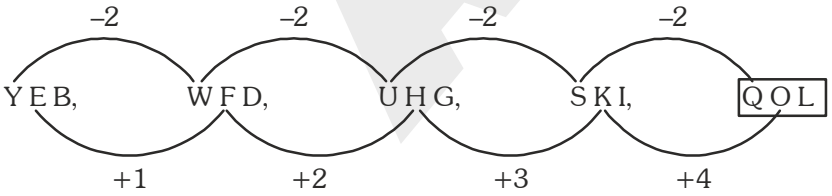
LKMN, LKMN

63. YEB WFD UHG SKI ☐

(1) QOL (2) QGL (3) TOL (4) QNL

Ans. ***(1)***

Sol.



64. The number of ways in which the letters of the work 'VOWEL' be arranged so that the vowel letters are always together :

(1) 52 (2) 48 (3) 24 (4) 20

Ans. ***(2)***

Sol. (OE) VWL

So can be arranged in 4! ways and OE can be in 2! ways.

So total is $4 \times 3 \times 2 \times 2 = 48$ ways.

65. A beaker half filled with water weighs 600 g. When it is empty weighs 150 g. The weight of the beaker when $\frac{2}{5}$ of it is filled with water is :

(1) 240 g (2) 450 g (3) 360 g (4) 510 g

Ans. ***(4)***

Sol. As 50% is 450 gm so 40% will be 360 gm + 150 = 510.

66. If the length of a rectangle is increased by 30% and breadth is decreased by 20%, then the variation in the area of new rectangle is :

(1) Decreases by 4% (2) Increases by 4% (3) Decreases by 25% (4) Increases by 25%

Ans. ***(2)***

Sol. Increase by 4% as

Let L = 10

B = 10 Area = 100

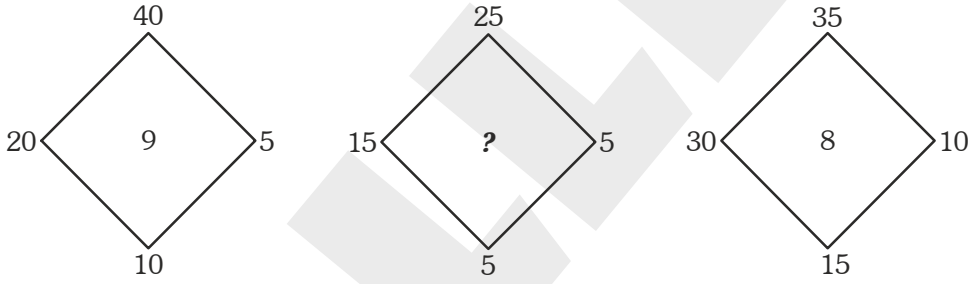
New L = 13 $\downarrow$ 4%

B = 8 Area = 104

Directions: (Questions : 67 - 69)

In the questions given below the numbers in the figure are related. Identify their relationship and find the missing number.

67.



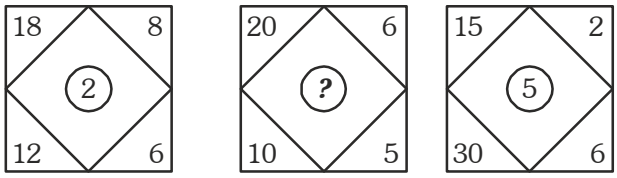
(1) 7 (2) 5 (3) 6 (4) 8

Ans. ***(3)***

Sol. Difference of diagonals, add then and divide by 5.

$$\frac{(40-5)+(20-10)}{5} = \frac{35+10}{5} = 9$$

$$\frac{(35-10)+(30-15)}{5} = \frac{40}{5} = 8$$

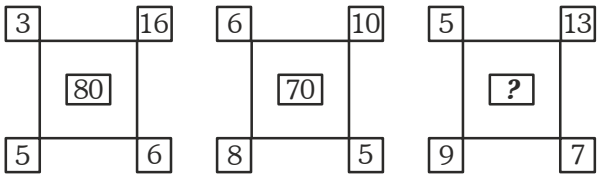
68. 

(1) 8 (2) 3 (3) 4 (4) 5

Ans. ***(1)***

Sol. $18-(12\div 6)\times 8=2$

$20-(10\div 5)\times 6=8$

69. 

(1) 74 (2) 95 (3) 84 (4) 120

Ans. ***(3)***

Sol. $5+9\times 13-7$

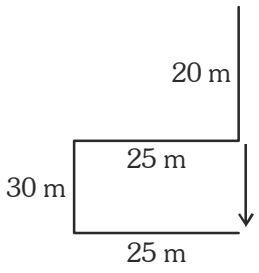
$14\times 6=84$

70. Raju walked 20 m towards south, then turning to his right and he walks 25 m, then turning to his left and he walks 30 m. Again he turns to his left and walks 25 m. How far is the from his initial position (Assuming that all turns are at right angles) :

(1) 20 m (2) 30 m (3) 100 m (4) 50 m

Ans. ***(4)***

Sol.

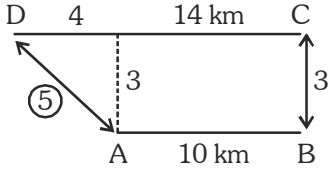


71. A person starting from 'A' drives 10 km eastwards to reach the point 'B', then turns to north and goes 3 km to reach 'C'. Then turns west and drives 14 km to reach 'D'. Then the distance between 'A' and 'D' is

(1) 4 km (2) 5 km (3) 7 km (4) 10 km

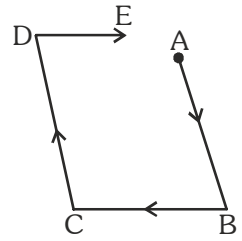
Ans. ***(2)***

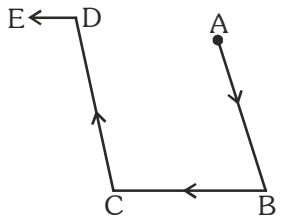
Sol.

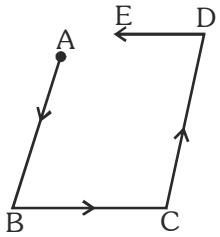


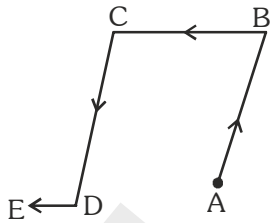
72. A girl starts from 'A' and walks towards South-East to reach 'B'. She turns towards west and walk to reach 'C'. Then she turns North-West and walk to reach 'D'. Finally she turns east and walks to reach 'E'.

The figure which exactly shows the path the girl has traced is :

(1) 

(2) 

(3) 

(4) 

Ans. ***(1)***

Directions: (Questions : 73 - 75)

Find the missing number in the given matrices.

73. $\begin{bmatrix} 9 & ? & 25 \\ 4 & 6 & 16 \\ 36 & 15 & 81 \end{bmatrix}$

(1) 10 (2) 8 (3) 9 (4) 11

Ans. ***(2)***

Sol. $\begin{bmatrix} 3^2 & 3+5 & 5^2 \\ 2^2 & 2+4 & 4^2 \\ 6^2 & 6+9 & 9^2 \end{bmatrix}$

74. $\begin{bmatrix} 26 & 36 & 46 \\ 24 & 34 & 44 \\ 25 & ? & 30 \\ 2 & 5 & 3 \end{bmatrix}$

(1) 15 (2) 14 (3) 10 (4) 7

Ans. ***(2)***

Sol. $\begin{bmatrix} 26 & 36 & 46 \\ + & + & + \\ \underline{24} & \underline{34} & \underline{44} \\ \underline{25} & \underline{14} & \underline{30} \\ = 2 & = 5 & = 3 \end{bmatrix}$

75. $\begin{bmatrix} 9 & 61 & 20 \\ 6 & ? & 10 \\ 8 & 34 & 30 \end{bmatrix}$

(1) 36 (2) 46 (3) 26 (4) 62

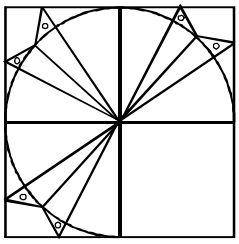
Ans. ***(3)***

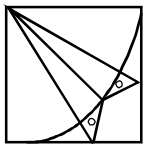
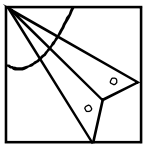
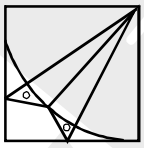
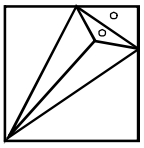
Sol. $\begin{bmatrix} 9^2 - 20 = 61 \\ 6^2 - 10 = 26 \\ 8^2 - 34 = 30 \end{bmatrix}$

Direction: (Question 76-77):-

Find the missing part of the given figure from the alternatives.

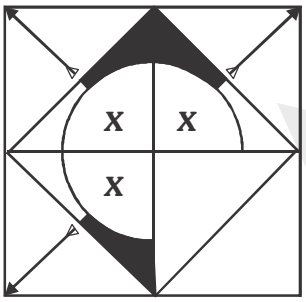
76.



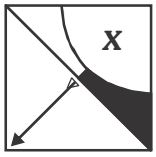
(1)  (2)  (3)  (4) 

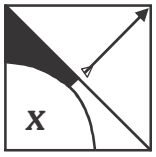
Ans. ***(1)***

77.



(1) 

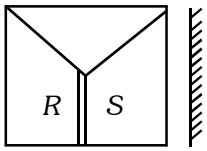
(2) 

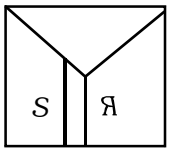
(3) 

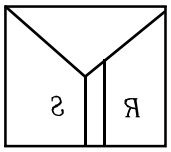
(4) 

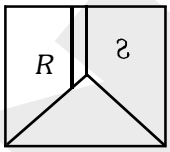
Ans. ***(4)***

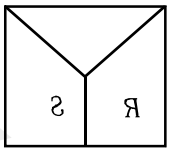
Direction:(Question 78 - 79): -Find the correct mirror image for the following problem figures choosing from the given options.

78. 

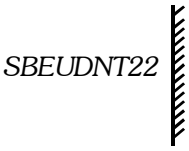
(1) 

(2) 

(3) 

(4) 

Ans. ***(2)***

79. 

(1) 22TUNDES (2) SBEUDNT22 (3) 22TUNDES (4) SBEUDNT22

Ans. ***(3)***

80. Find the correct water image for the following problem figure choosing from the four options:

UPAT58476

(1) ∩PAT58476 (2) ∩PAT58476 (3) ∩PAT58476 (4) ∩PAT58476

Ans. ***(1)***

81. If

	G	E	M
+	G	M	M
+	E	A	A
1	3	3	9

then the code for GAME is:

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

Ans. ***(3)***

Sol.
$$\begin{array}{r} GEM \\ +\ GMM \\ +\ EAA \\ \hline \end{array}$$

G = 3 M = 2

E = 6 A = 5

82. If the product of (1 P 6) and (2 Q) is 4 2 1 2, then the values of P and Q are respectively

(1) 4 and 2 (2) 5 and 7 (3) 4 and 7 (4) 5 and 2

Ans. ***(2)***

Sol.
$$\begin{array}{r} 1\ \boxed{5}\ 6 \\ \times\quad 2\ \boxed{7} \\ \hline 4\ 2\ 1\ 2 \end{array}$$

83. When [D U C K] is multiplied by K, the product 5 5 U D U. If the value of U is 1, the values of C and D respectively are:

(1) 7 and 2 (2) 4 and 6 (3) 2 and 3 (4) 2 and 6

Ans. ***(4)***

Sol.
$$\begin{array}{r} D\ U\ C\ K \\ \times\quad X\quad\ K \\ \hline 5\ 5\ 1\ D\ 1 \end{array}$$

$9 \times C + 8 = D$

$9 \times 4 + ? = 1$

D = 6

D = 6

C = 2

66129

$\times 9$

55161

Direction: (Question 84-86)

Assume the given statements as true and decide which of the following conclusions follow logically from these statements.

84. Statements:

a. All books are tables.

b. All tables are boxes.

Conclusions:

I. All boxes are books.

II. Some boxes are tables.

(1) Only conclusion I follows

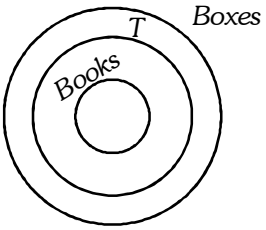
(2) Only conclusions II follows

(3) Neither conclusion I nor II follows

(4) Both conclusions I and II follow

Ans. (2)

Sol.



85. Statements:

a. All ants are elephants.

b. No elephant is an animal.

c. All elephants are tigers.

Conclusions:

I. No ant is an animal.

II. Some tigers are elephants.

(1) Only conclusions I follows

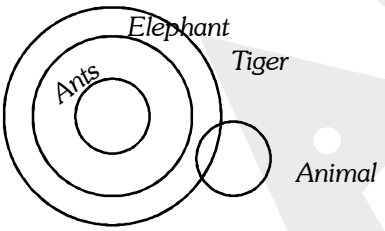
(2) Only conclusion II follows

(3) Both conclusions I and II follow

(4) Neither conclusion I nor II follows

Ans. (3)

Sol.



86. Statements:

a. All roses are jasmine.

b. No jasmine is a flower.

Conclusions:

I. Some roses are flowers.

II. Some flowers are jasmine.

(1) Only conclusion I follows

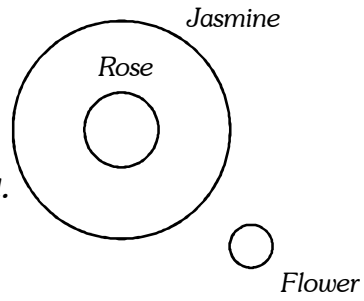
(2) Only conclusion II follows

(3) Conclusions I and II both follow

(4) Neither conclusion I nor II follows

Ans. ***(4)***

Sol.



87. In a code 2357 stands for the word WORK and the code 14649 stands for the word STATE, then the code 14359 stands for:

(1) S C O R E

(2) S T O R E

(3) S T E O R

(4) S T O E R

Ans. ***(2)***

Sol. W O R K

2 3 5 7

S T A T E

1 4 6 4 9

T = 4

S T O R E = 14359

88. If a word BALL is coded as 288, then the word JACK is coded as:

(1) 330

(2) 240

(3) 220

(4) 140

Ans. ***(1)***

Sol. B A L L

$2 \times 1 \times 12 \times 12$

J A C K

$10 \times 1 \times 3 \times 11$

Option (1) - 330

89. If a word PAT is coded as 22318, then the word COW is coded as:

(1) 25175

(2) 23153

(3) 31725

(4) 31523

Ans. ***(1)***

Sol. *P A T*

2 2 3 1 8

C O W

2 5 17 5

90. Number of pairs of letters, which are there in the word PARADISE, that have as many letters between them in the word as in the alphabet are:

(1) 4 (2) 3 (3) 2 (4) 5

Ans. ***(2)***

Sol. P A R A D I S E (1) (3) (2)

I) AD II) PR III) AE

91. Number of letters skipped between adjacent letter in the series is in the order 2, 5, 7, 8. This given rule is observed by series:

(1) P S X C L (2) K N T B J (3) V X B G P (4) D G M U D

Ans. ***(4)***

Sol.

D	G	M	U	D
4	7	13	21	30
	3	6	8	

92. In the word JOURNEY, the 1st and 5th letters, 2nd and 6th letters, 3rd and 7th letter are interchanged. The 5th letter from your right after re-arrangement is:

(1) N (2) E (3) Y (4) J

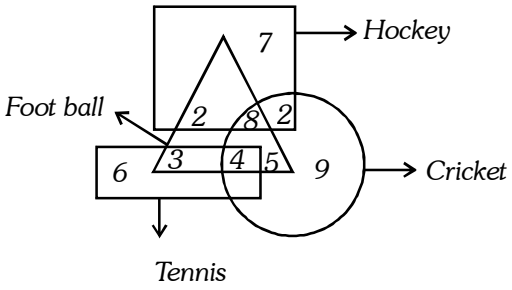
Ans. ***(3)***

Sol.

J	O	U	R	N	E	Y
1	2	3	4	5	6	7
N	E	Y	R	J	O	U

Direction: (Question 93 - 95)

In the following figure circle represents those who play cricket, triangle represent those who play cricket, triangle represents those who play football, square represents those who play hockey and rectangle represents those who play tennis. Based on the figure answer the following questions.



93. The number that represents those who play cricket, football and hockey is:

(1) 2 (2) 4 (3) 5 (4) 8

Ans. (4)

94. The number that represents those who play cricket but not hockey is

(1) 18 (2) 20 (3) 26 (4) 28

Ans. (1)

95. The number that represents those who play neither tennis nor football is

(1) 9 (2) 16 (3) 18 (4) 26

Ans. (3)

96. The measure of the angle between the hands of the clock at 3:40 is

(1) 120° (2) 130° (3) 140° (4) 150°

Ans. (2)

Sol. $\theta = \left|30h - \frac{11}{2}m\right|$

$= \left|30 \times 3 - \frac{11}{2} \times 40\right|$

$\Rightarrow |90 - 220|$

$\Rightarrow 130$

97. The calender of which year among the following is identical to the calender of the year 1996:

(1) 2002 (2) 2007 (3) 2016 (4) 2024

Ans. (4)

Sol. $1996 + 28 = 2024$

98. A bank sanctions loan to a person on 3rd Friday of June 2004. The date on which loan was sanctioned is:

(1) 14 (2) 15 (3) 17 (4) 18

Ans. (4)

Sol. 1st June 2004

2000 + 3yr. + Jan to May +1

$0+3\times1+3+1+3+2+3+1$

$3+6 \quad \Rightarrow 9 \quad \Rightarrow 2$ odd. days (Tuesday)

$\therefore$ 1st June is Tuesday

so, 4th June is Friday

$\therefore$ 18th June is also Friday.

99. ***Direction:*** Answer the following question based on the sequence numbers given.

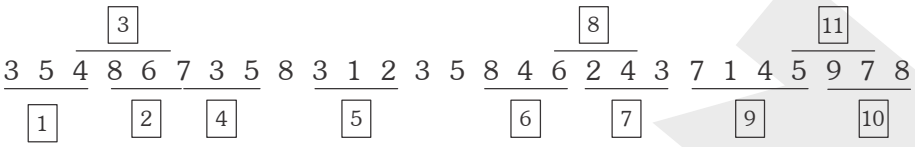
3548673583123584624371459 78:

If half the sum of any two consecutive numbers is the very next number, how many times such numbers occur in the given sequence:

(1) 8 (2) 9 (3) 10 (4) 11

Ans. ***(4)***

Sol.



100. In the letter series from A to Z if 5th, 10th, 15th, 20th and 25th letters are replaced by their previous second letter and last 13 letters are written in the reverse order, then the number of consonants between K and X are:

(1) 4 (2) 7 (3) 11 (4) 13

Ans. ***(1)***

Sol.

A B C D [E] F G H I [J] [K] L M N

[O] P Q R S [T] U V W X [Y] Z

M R W

Z W [X]