ENGLISH – HINDI

13-15
CODE

Roll No. रोल नंबर

Booklet Number पुस्तिका संख्या

152547

MENTAL ABILITY TEST

(For Students of Class X)

Time: 120 Minutes   Max. Marks: 100

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open the test-booklet.

1. Answers are to be given on a **separate OMR sheet**.

2. Please **follow the instructions** given on the **OMR sheet** for marking the answers.

3. Write your **eight-digit roll number** as allotted to you in the admission card very clearly on the **test-booklet** and darken the appropriate circles on the **OMR sheet** as per instructions given.

4. Write down and darken **test-booklet number** in the appropriate circles on the **OMR sheet as per instructions given.**

5. There are **100 questions** in this test. All are compulsory.

6. 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.

7. **Rough work** can be done **anywhere in the test-booklet** but not on the **OMR sheet.**

8. Each correct answer will be awarded one mark.

9. **THERE WILL BE NO NEGATIVE MARKING.**

10. Please return only the OMR sheet to the invigilator after the test.

11. English version of the question paper will be considered as final in case of any dispute arising out of variation in translated version.

PLEASE TURN OVER THE PAGE AND START YOUR WORK

बौद्धिक योग्यता परीक्षा

(कक्षा X के विद्यार्थियों के लिए)

समय: 120 मिनट   अधिकतम अंक: 100

परीक्षार्थियों के लिए अनुदेश

प्रश्न-पुस्तिका खोलने से पहले, निम्नलिखित अनुदेशों को ध्यान से पढ़िए।

1. उत्तर एक अलग ओएमआर-पत्र पर देने हैं।

2. कृपया उत्तर चिह्नित करने के लिए ओएमआर-पत्र पर दिए गए अनुदेशों का अनुपालन कीजिए।

3. दिए गए निर्देशों के अनुसार आपके प्रवेश-पत्र पर दिए गए अपने आठ-अंकीय रोल नंबर को प्रश्न-पुस्तिका और ओएमआर-पत्र पर बिलकुल स्पष्ट रूप से लिखिए और उपयुक्त गोली को काला कीजिए।

4. दिए गए निर्देशों के अनुसार ओएमआर-पत्र पर प्रश्न-पुस्तिका संख्या लिखिए और उपयुक्त गोलों को काला कीजिए।

5. इस परीक्षा में 100 प्रश्न हैं। सभी प्रश्न अनिवार्य हैं।

6. चूँकि इस प्रश्न-पत्र के लिए निर्धारित समय बहुत सीमित है, इसीलिए इसका सर्वोत्तम उपयोग कीजिए और किसी एक प्रश्न पर बहुत अधिक समय न लगाइए।

7. रफ कार्य प्रश्न-पुस्तिका में कहीं भी किया जा सकता है, किंतु ओएमआर-पत्र /अलग कागज़ पर नहीं।

8. प्रत्येक सही उत्तर के लिए एक अंक प्रदान किया जाएगा।

9. गलत उत्तर के लिए कोई अंक काटा नहीं जाएगा।

10. कृपया परीक्षा के पश्चात केवल ओएमआर-पत्र ही निरीक्षक को वापस कीजिए।

11. अनुवादित संस्करण में अंतर से उठे किसी भी विवाद की स्थिति में, प्रश्न-पत्र के अंग्रेजी संस्करण को निर्णायक माना जाएगा।
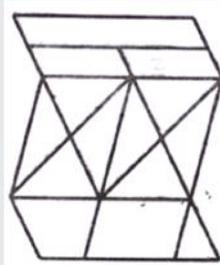
कृपया पृष्ठ पलटिए और अपना कार्य आरंभ कीजिए।

1. If p
O + O = 10
O + □ + □ = 10
O + □ − Δ × O = 5
Then, the value of Δ will be_____.

1. 1.5   2. 2.5   3. 5   4. 7.5

Sol. **(1)**
O + O = 10
O = 5
O + □ + □ = 10
2□ = 5
□ = 2.5
O × □ − Δ × O = 5
5 (□ − Δ) = 5
2.5 − Δ = 1
Δ = 1.5

2. How many parallelograms are there in the given figure ?

1. 14   2. 15   3. 16   4. 17

Sol. **(2)**
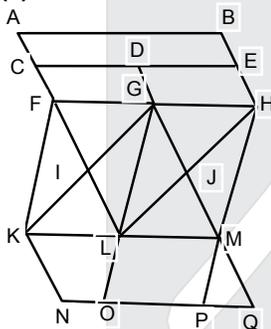

ABEC , CDGF , DEHG
CEHF , ABHF, FGLK, GHML, FHMK , IGJL,KMQN,GHPO,LMPO,CDML,GHLK
Total = 15

3. A newspaper has 6 sheets consisting of 24 page in total. If page number 17 of that newspaper is missing then find the set of missing pages in that newspaper, from the alternatives given below :

1. 6,7,16,17   2. 7,8,17,18   3. 8,9,17,18   4. 9,10,16,17

Sol. **(2)**
Group of papers are (1, 2, 23, 24)
(3, 4, 21, 22)
(5, 6, 19, 20)
(7, 8, 17, 18)
(9,10,15,16)
(11,12,13,14)
So, 7 , 8 , 17 , 18 are missing.

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4. The given figure in the question has five squares and four equilateral triangles. Two squares and two triangles are shaded. The figure is folded along the dividing lines the squares by 90° and triangle by 45° so as to form a close three, dimensional object. The object is then placed with its apex pointing towards your left. Which one among the figures given in the alternatives can be seen ?

1.   2.   3.   4.
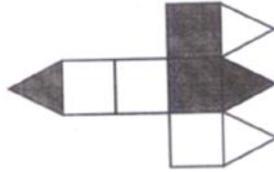
Sol. **(1)**

5. Complete the following series :
6, 24, 60, ? , 210
1. 96   2.120   3.140   4.160

Sol. **(2)**

6. By studying the figure and number relationship, find the missing number '?' :

26	9		32	6		41	2		33	4
	3			4			7			?	
15	7		18	8		9	19		8	15
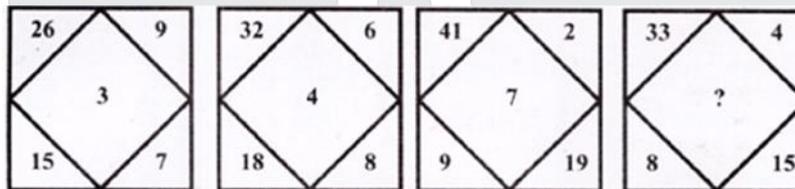
1.5   2. 6   3. 9   4. 12

Sol. **(2)**

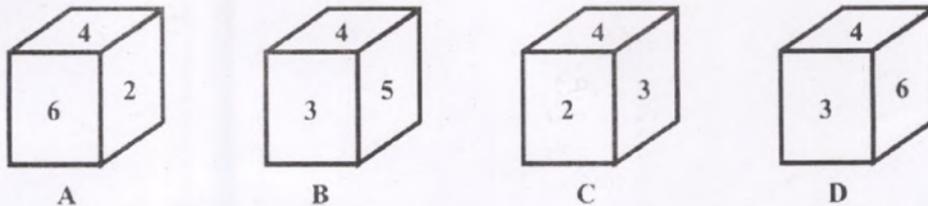$\sqrt{(41+19)-(9+7)}$ = 7

$\sqrt{(33+15)-(8+4)}$ = 6

7. The opposite faces of Dice × are :
[(5,2), (6,3), (4,1)]
The opposite faces of Dice Y are :
[(3,5), (4,1), (6,2)]
Which figure can represent both Dice X and Dice Y with faces shown below ?

1. A   2. B   3. C   4. D

Sol. **(3)**
In option (A) 6 & 2 are adjacent which is wrong according to dice Y.
In option (B) 3 & 5 are adjacent which is wrong according to dice Y.
In option (C) correct configuration.
In option (D) 6 & 3 are adjacent which is wrong according to dice X.

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8.

```
    R  S  S  T  U
+      N  R  S  T
+         R  T  S
_____
    3  7  8  4  9
```

the, find the code of T U R N S from the given alternatives provided there is no carrying over in the given addition using **letter** codes.

1. 1 3 6 2 5　　　　2. 6 5 2 3 1　　　　3. 1 6 3 5 2　　　　4. 5 3 1 2 6

Sol.　**(3)**

R = 3 　　　＿＿＿ (1)
N + S = 7 　＿＿＿ (2)
S + R + R = 8 　＿＿ (3)
T + S + T = 4 　＿＿ (4)
U + T + S = 9 　＿＿ (5)

from equ. (1) & (3)
S = 2
from equ. (4)
T = 1
from equ. (3)
U + 1 + 2 = 9
U = 6
from equ. (2)
N + 2 = 7, N = 5
So

```
3     2     2     1     6
      5     3     2     1
            3     1     2
_____
3     7     8     4     9
```

TURNS = 1 6 3 5 2

9.　A comparison of ages of A, B, C, D and E are as follows.
I. B's age is half the age of A.
II. B's age is 1½ times the age of C .
III. D's age is 12 years less then C.
IV. D's age is 1½ times the age of E.
V. The age of E is 12 years.
With the given data what will be the difference in the ages of A and C ?

1. 64　　　　2. 60　　　　3. 40　　　　4. 36

Sol.　**(2)**

$B = \dfrac{A}{2} = \dfrac{3}{2} C$

$\dfrac{3}{2} E = 0$ 　　　C – 12
E = 12

So D = $\dfrac{3}{2} E$ = 18

C – 12 = 18
C = 30

$\dfrac{A}{2} = \dfrac{3}{2} \times 30$

A = 90
A – C = 90 – 30 = 60

10. If CLOUD = 11, BURST = 16 and ACE = 3, then MONSOON = ?

1. 13　　　　　　　2. 15　　　　　　　3. 17　　　　　　　4. 19

Sol. **(2)**

Sum of place values of CLOUD = 3 + 12 + 15 + 21 + 4 = 55

Is divided by numbers of letters $\dfrac{55}{5} = 11$

Similarly from BURST = $\dfrac{2 + 21 + 18 + 19 + 20}{5}$ = 16

For ACE = $\dfrac{1 + 3 + 5}{3}$ = 3 and For MONSOON = $\dfrac{13 + 15 + 14 + 19 + 15 + 15 + 14}{7}$ = 15.

11. Three dice are rolled simultaneously and the numbers shown on all the three dice are added, then the total number of possible ways to have a sum of 7 is _____.

1. 12　　　　　　　2. 13　　　　　　　3. 15　　　　　　　4. 16

Sol. **(3)**

(11,5)　(2,1,4)　(3,1,4)　(4,1,3)　(5,1,1)

(1,2,4)　(2,2,3)　(3,2,3)　(4,2,1)

(1,3,3)　(2,3,2)　(3,3,1)

(1,4,2)　(2,4,1)

(1,5,1) = 15

12. A comparison of marks scored by Gauri, Aaban, Seerat and Alvina in an examination is as follows.

I. Gauri has scored 15 marks less than Aaban

II. Gauri has scored 20 marks more than Seerat

III. Alvina has scored 10 marks less than Seerat

To decide who has scored the highest marks, identify the statement from those given in the alternatives is respect of sufficiency of data.

1. Data given in I and II are sufficient　　　　2. Data given is I and III are sufficient

3. Data given in II and III are sufficient　　　　4. Data given in I, II and III are sufficient

Sol. **(4)**

Aban – Gori = 15

Gori– Seerat = 20

Seerat – Alvina = 10

Aban > Gori> Seerat > Alvina

13. The number in the place '?' should be _____.

1. 30　　　　　　　2. 32　　　　　　　3. 34　　　　　　　4. 36

Sol. **(2)**

(7 × 5) + (6 × 3) – (4 × 10) = 13

(9 × 4) + (8 × 4) – (7 × 5) = 33

(8 × 4) + (5 × 3) – (6 × 2) = 35

(6 × 5) + (10 × 3) – (7 × 4) = 32

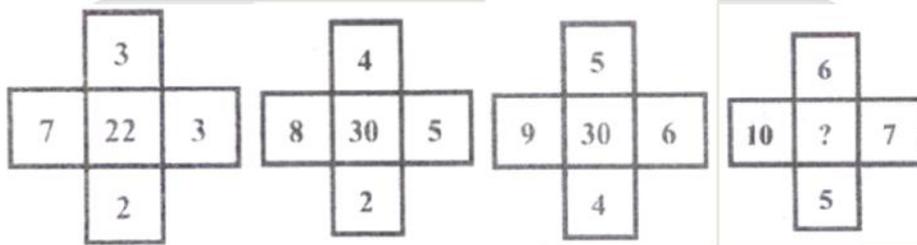**14.** Find out which of the following figures can be formed from the pieces given in the figure 'X' ?

X
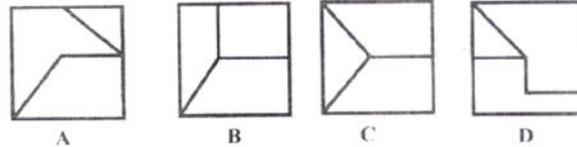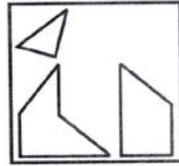
1. A   2. B   3. C   4. D

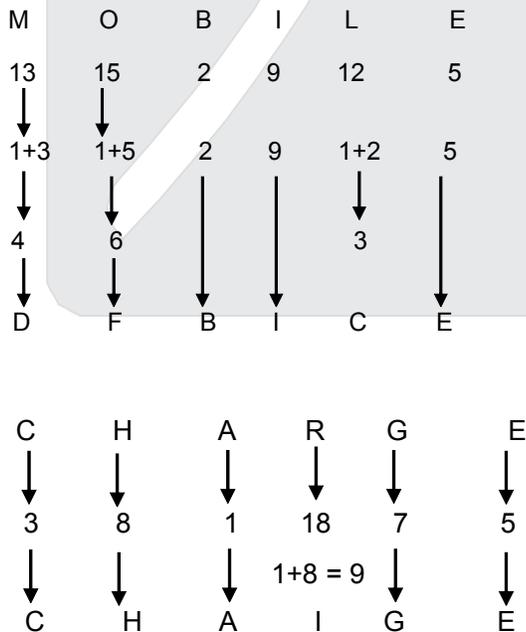**Sol.** **(1)**

15. Find the missing number '?' in the figure given below :

1. 30   2. 32   3. 33   4. 35

Sol. **(4)**

16. If MOBILE is coded as DFBICE, then CHARGE is coded as :
1. CHBXQE   2. CLARTE   3. CHAIGE   4. CHIAEF

Sol. **(3)**

M	O	B	I	L	E
13	15	2	9	12	5
1+3	1+5	2	9	1+2	5
4	6			3	
D	F	B	I	C	E

C	H	A	R	G	E
3	8	1	18	7	5
			1+8 = 9		
C	H	A	I	G	E

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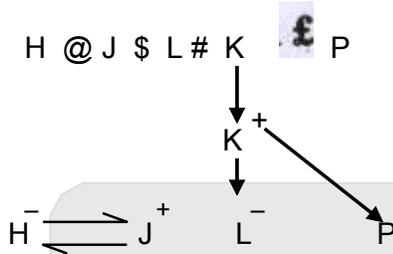
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17. Study the following information :
If 'A\$B' means A is brother of B,
'A@B' means A is wife of B,
'A # B' means A is daughter of B and
A ℑ B means A is father of B.
Based on the above information, which of the following alternative represents the correct group of symbols that indicates the relationship for 'K' is father-in-law of H ?
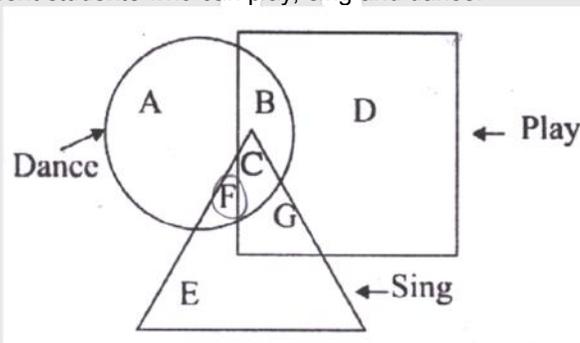1. H@\$L#P ℑ K   2. H@\$P ℑ L# K   3. H@J\$L#K ℑ P   4. H@P\$J ℑ SI#K

Sol. **(3)**

H @ J \$ L # K £ P

H @ J \$ L # K   £   P

K +

H ⇌ J⁺   L⁻   P

Direction : (Questions 18-20)
The following figures represent students who can play, sing and dance.

18. Which part of the figures represents students who can sing and dance ?
1. F   2. C   3. F and C   4. E and G

Sol. **(3)**

19. The number of students who can play in more by 'a' than the number of students who can dance; and the number of students who can do both playing and singing is more by 'b' than the number of students who can do both singing and dancing. Then what is the difference of the number of students who can only dance and who can only play ?
1. a + b   2. (2a – b) or (b – 2a)   3. (a – 2b) or (2b –a)   4. (a – b) or (b –a)

Sol. **(4)**
(B + C + D +G) – (A + B + C + F) = a
D + G – A – F = a _____(i)
(C + G) – (C + F) = b
G – F = b   ---------------(ii)
By equation (i) & (ii)
(D – A) + b = a
D – A = a – b
So we can say that the difference is either (a –b) or (b –a)

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20. It is given that the total numbers of students in all the three disciplines are same. Also, sum of the number of students who can only dance, and twice of the number of students who can do both singing and dancing, equals the sum of the students who can do both singing and playing and the students who can do both dancing and playing. Then which among the alternative is a correct statement about the number of students who can only play and those who can only sing ?

1. The number of students who can only sing is twice as many as the number of students who can only play

2. The number of students who can only sing is equal to the sum of the number of student who can sing and dance and the number of students who can only play and sing.

3. The number of students who can only play and sing equals the number of students who can only dance and play.

4. The number of students who can only dance equals to the number of students who can only sing.

Sol. **(1)**

21. Complete the following series

1, –8, 81, ?, 15625

1. – 1022   2. – 1024   3. – 4094   4. – 4096

Sol. **(2)**

$1^2, -(2)^3, (3)^4, -(4)^5, (5)^6$

$\Rightarrow -1024$

22. Yaibiren is standing 4 metres East of Rajib, who is 1 metres North of Achira. If Sahibah is standing 3 metres South of Achira then in which direction of Yabiren is Sahibah ?
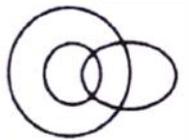
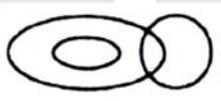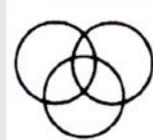1. North - East   2. North - West   3. South-East   4. South-West

Sol. **(4)**

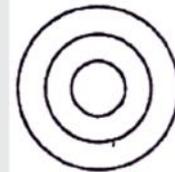**23.** Which of the following diagram indicates the best relationship among men, fathers and teachers ?

A   B   C   D

1. A   2. B   3. C   4. D

Sol. **(1)**

24. Ishan wishes Irfan 'Good Morning' When the hour hand of a (measured clockwise) clock is positioned between 9 and 10. The angle between the two hands is 145º. The time shown by the clock is

1.9.08 AM   2. 9.10 AM   3. 9.12 AM   4. 9.15

Sol. **(2)**

Hour hand makes angle 270º + 5º = 275º

Minutes hand makes angle = 60º

So angle formed = 275º – 60º = 215º

So angle = 360º – 215º = 145º

25. If '15 + 10 means 5' ; '6 × 3 means 9' ; '8 ÷ 4 means 32' ; and '12 – 2 means 6' ; then what will be the value of 27 + 81 – 9 × 6 ?

1. 36   2. 24   3. 12   4. 6

Sol. **(2)**

27 – 81 ÷ 9 + 6

$\Rightarrow$ 27 – 9 + 6

$\Rightarrow$ 33 – 9 = 24

26. Which number will replace the '?' in the following sequence ?
5, 7, 14, 24, 42, ?, 119

1. 71   2. 67   3. 65   4. 63

Sol. **(1)**
5 + 7 + 2 = 14
7 + 14 + 3 = 24
14 + 24 + 4 = 42
24 + 42 + 5 = 71

27. What will be the missing term '?' in the given series ?
AK, FP, ? PZ, UE, ZJ

1. KU   2. JT   3. JU   4. KV

Sol. **(1)**
$\overset{1}{A}\overset{11}{K},\ \overset{6}{F}\overset{16}{P},\ ?\ ,\ PZ\ ,\ UE,\ ZJ$

+ 5 are added
FP → Ku

28. In a family of four members there is father, mother, son and daughter. When sorted according to decreasing order of their ages, the order is father, mother, son and daughter. The difference between the age of father and mother is 5 years. The difference between total age of male members and female members is 15 years. Also the total age of children is 20 years, then the age of the son is _____

1. 10 years   2. 15 years   3. 20 years   4. 25 years

Sol. **(2)**
F > M > S > d
F – M = 5
(F + S) – (M + d) = 15
      S + d = 20
      5 + (s – d) = 15
      s – d = 10
      s + d = 20
So   s = 15 years

29. If the ninth day of a month is four day earlier than Thursday then what day will it be on the twenty third day of the month ?
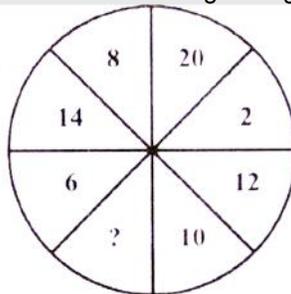
1. Monday   2. Wednesday   3. Friday   4. Sunday

Sol. **(4)**
9th day = Sunday
So 23rd day = Sunday

30. Which number replace that question mark '?' in the given figure ?

1. 4   2. 16   3. 18   4. 22

Sol. **(2)**
14 + 8 = 22
20 + 2 = 22
10 + 12 = 22
6 + 16 = 22

31. Find the missing value '?' in the following series:
13, 34, 74, ?, 290

1. 168   2. 170   3. 172   4. 174

Sol. **(2)**

$2^2 + 3^2 = 13$
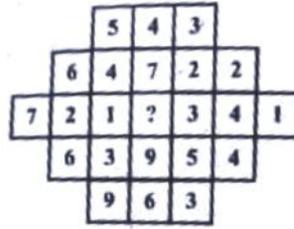
$3^2 + 5^2 = 34$

$5^2 + 7^2 = 74$

$7^2 + 11^2 = 170$

$11^2 + 13^2 = 290$

32. What number comes in place of '?' in the given figure?

1. 9   2. 8   3. 7   4. 6

Sol. (1)

$\dfrac{5+3}{2} = 4$

$\dfrac{6+4+2+2}{2} = 7$

$\dfrac{6+3+5+4}{2} = 9$

$\dfrac{9+3}{2} = 6$

Similarly $\dfrac{7+2+1+3+4+1}{2} = 9$

33. The following figures represent information given against them.

☐ Total number of students who applied for Board Examination.

△ Total number of students who actually appeared at Board Examination.

○ Total number of urban students who appeared at Board Examination

☐ Total number of students who qualified at Board Examination.

Based on the above information which of the following figures represents the above facts?

1.   2.   3.   4.

Sol. **(3)**

Option (3) is correct

34. Five friends P, Q, R, S and T read a newspaper. The one who reads first gives it to R. The one who reads last had taken it from P. T was neither the first nor the last one to read, There were two readers between Q and P. Who reads the newspaper last?

1. P   2. Q   3. R   4. S

Sol. **(4)**

Configuration according to conditions is

Q   R + P S

Last is 5

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35. A clock shows 05:45. A plane mirror is kept on the right of the clock, with its plane perpendicular to the face of the clock. What time will be shown by the mirror image ?

    1. 06 : 45   2. 05 : 15   3. 06 : 15   4. 07 : 15

Sol. **(3)**

    11 : 60 – 5 : 45

         6:15

36. In a certain code language "Kolkata is cultural hub of India" is coded as "$\alpha 2463\beta$" and "Mumbai is financial hub of India" is coded as "$\gamma 3472\beta$". Then in the same language "India is hub of democracy" may he coded as

    1. α 2 4 3 9   2. 2 4 3 γ 7   3. β 3 2 4 9   4. 3 2 β 4 7

Sol. **(3)**

    In both statement words is hub of India, are common, so common coding is B, 2,4,3 & 7 for Mumbai or financial

    According to options option (3) is correct. Because 9 stands for democracy.

37. Which letter is midway between 13th letter from the left and the 4th letter from the right in the sequence given below?
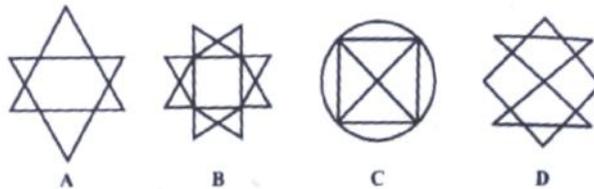
    USBEYFHKOPRAWCGJMQDIVLNTXZ

    1. O   2. Q   3 P   4. M

Sol. **(2)**   13th letter from left is W

         & 4th letter from right is N

         Middle between W & N

         Is Q

38. Which of the following figure(s) can not be drawn without either lifting the pen or re-tracing any line ?

    1. Only A   2. Both A and B   3. Only C   4. Both C and D

Sol. **(3)** Only option (3) cannot be drawn.

39. Find the missing values in place of the question marks in the given pattern.

    1. $\frac{1}{13}$ 2. $\frac{N}{10}$ 3. $\frac{M}{13}$ 4. $\frac{Z}{18}$

Sol. **(3)**

40. What will be the missing number in the given series ?
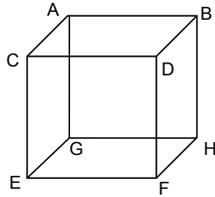
    1332, 732, 348, _____ , 36, 12

    1. 32   2. 132   3. 148   4. 216

Sol. **(2)** $1332 = 11^3 + 1$

         $732 = 9^3 + 3$

         $348 = 7^3 + 5$

         $132 = 5^3 + 7$

         $36 = 3^3 + 9$

         $12 = 1^3 + 11$

41. Find the missing term '?' in the given figure.

1. N_{10} 2. P_{20} 3. O_{24} 4. Q_{16}

Sol. **(2)**

1	4	9	16	25
1 + 1	4 + 2	9 + 3	16 + 4	5 + 5
2	6	12	20	30

A_2, D_8, I_{12} , ?, Y_{30}

A,	D	I	P	Y
↓	↓	↓	↓	↓
1	4	9	16	25
2	6	12	**20**	30

    +4   +6   +8   +10

So "P_{20}" is correct.

42. If, $a > b$, $a > 0$, and $b \neq 0$, then which of the following statements is always true ?
1. $a \times b > 0$ 2. $a \times b < 0$ 3. $a \times b$ is undefined   4. $a \times b^2 > 0$

Sol. **(4)**

$a > b$

$a > 0$

Case-1 :

$a > 0$, $b > 0$

& $a > b$

Case - 2

$a > 0$, $b < 0$

$a > b$

so $a \times b^2 > 0$ always right

43. In certain coded language

'way to win' is written as AAaa aaaa AAAa,

'Go to Walk' is written as Aaaa aaaa AAAA,

'Get up early' is written as AaAa AaaA aaAA.

Then how can 'Always go to morning walk early' be written in that coded language ?
1. aaAA Aaaa aaaa aaaA AAaa aaAA   2. aaAA Aaaa aaaa aaaA AAAA aaAA
3. aaAA AaAa aaaa aaaA aaAA AAaas   4. aaaA AaAa aaaa aaAA AAAA aaAA

Sol. Bonus

44. If + means ×; ÷ means –; – means + ; and × means ÷, then 2 + 12 × 4 − 6 ÷ 6 is equal to _____.

   1. 0   2. 6   3. 12   4. 49

Sol. **(2)**

2 + 12 × 4 − 6 ÷ 6

2 × 12 ÷ 4 + 6 − 6

2 × 3 + 6 − 6

6 + 6 − 6

= 6

45. In the given equation. Which two numbers in the expression on the left hand side will be interchanged to form a correct equation?

5 + 4 × 8 ÷ 12 − 3 = 3

   1. (3, 5)   2. (4, 12)   3. (3, 4)   4. (8, 5)

Sol. **(3)**

(3, 4)

5 + 4 × 8 ÷ 12 − 3 = 3

5 + 3 × 8 ÷ 12 − 4

5 + 2 − 4 = 3.

46. If a, b, c, d, and e are positive numbers, and it is given that,

a + b = c + d,

b + d = 2a,

d + e > a + b and

c + d > a + e

then, which of the following statement is true?

   1. d > a > b > e > c   2. d > b > e > a > c   3. a > b > c > d > e   4. a > d > b > e > c

Sol. **(1)**

a + b = c + d

b + d = 2a   c + d = a

d + e > a + b

c + d > a + e

47. Kashvi facing towards rising sun turned to her left and walks for 60m. She then turned to west and walked for 15m. Then she turned towards left at an angle of 45° and reached 95m from her original position. How much total distance did she travel?

   1. 95m   2. 115m   3. 155m   4. 175m

Sol. **(4)**

Total Distance = 100 + 15 + 60 = 175

48. A cube is coloured on all the six faces with six different colours – black, brown, green, red, yellow and blue.

• Red face is opposite to the black face.

• Green face is between red and black faces.

• Blue face is adjacent to yellow face.

• Brown face is adjacent to blue face

• Red face is in the bottom.

Which of the following are adjacent to green?

   1. Black, yellow, brown, red   2. Blue, black, red, yellow

   3. Red, black, blue, yellow   4. yellow, blue, black, Red

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Sol. **(1)**

EFGH → RED

ABCD → Black

CDEF → Green

BDFH → Yellow

ABGH →Blue

ACEG → Brown

49. A watch gains 10 seconds in 3 minutes. It was set right at 9 A.M. In the evening of the same day, when the watch indicates half past 6'O clock , the true time is

1. 5:30 :00 P.M.   2. 5:48 :10 P.M.   3. 5:58 :20 P.M.   4. 6:08 :20 P.M.

Sol. **(3)**

Gains 10 seconds in every 3 minutes clock is run total 9 : 30 Hr

(From 9 : 00 am to 6: 30 pm)

clock gain

1800 Seconds

So the actual time is 30 minutes behind from 6:30PM.

So actual time is 6:00 or 5:58pm (approximate)

50. Given x is real and that

(A) $x^2 = 49$,   (B) $x^3 = 343$

Examine the given alternatives in respect of arriving at the Conclusion; x = 7 and find which is valid

I. Only A is sufficient to answer the question

II. Only B is sufficient to answer the question

III. Either A or B alone is sufficient to answer the question

IV. Both A and B together are sufficient to answer the equation

1. I   2. II   3. III   4. IV

Sol. **(2)**

$x^3 = 343$

So x = 7

2nd is sufficient

1st may bc ± 7

51. Find the values of 'x' and 'y' from the figure given below.
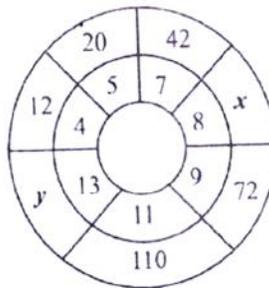
1. 65, 150   2. 46, 125   3. 56, 156   4. 56, 165

Sol. **(3)**

13 × (13 – 1) = 156
8 × (8 – 1) = 56
56 , 156

52. In a certain code 'COUNTRY' is written as 'ZSUOVPD'. How is 'TEACHER' written in the same code?

1. SUTIFED   2. REHCAET   3. QDGBDS   4. SFIDBFU

Sol. **(4)**

C O U N T R Y ⇒ Z S U O V P D
+1
+1
+1
+1
+1
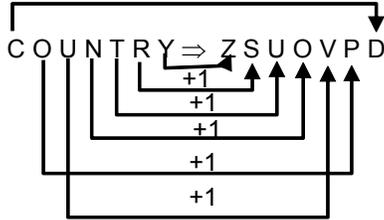
TEACHER ⇒ SFIDBFU

53. What number should replace the question mark?
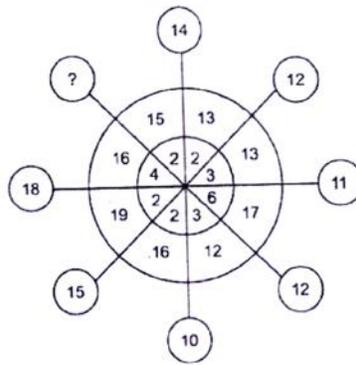
1. 15   2. 14   3. 13   4. 10

Sol. **(3)**

Directions : (Questions 54 -58)

A, B, C, D, E, F and G are seven teachers, Each one teaches only one and different language from among Konkani, Hindi, Malayalam, English, Manipuri, Tamil and Kannada on different days of a week. C teaches Malayalam on Friday. B teaches Konkani on the next day of the day on which the concerned teacher teaches English. F teaches on Thursday but neither teaches Hindi nor English. D teaches Tamil on the previous day on which day F teaches. A teaches Kannada on Tuesday. G teaches on the next day of the day on which the concerned teacher teaches Malayalam. E does not teach English.

54. Which subject does E teach?

1. Tamil   2. Hindi   3. Manipuri   4. Malayalam

55. On which day B teaches?

1. Monday   2. Friday   3. Wednesday   4. Sunday

56. Which language does F teach?

1. Manipuri   2. Kannada   3. Tamil   4. English

57. Which language does G teach?

1. Hindi   2. English   3. Kannada   4. Konkani

58. On which day D teaches?

1.Saturday   2. Tuesday   3. Wednesday   4. Thursday

Sol. **Question No. (54 to 58)**
A → Kannada → Tuesday
B → Konkani → Sunday
C → Malyalam → Friday
D → Tamil → Wednesday
E → Hindi → Monday
F → Manipuri → Thursday
G → English → Saturday

54. **(2) Hindi**

55. (4)
Sunday

56. (1)
Manipuri

57. (2)
English

58. (3)
Wednesday

59. One morning at 8 A.M. Navneet and Ravneet were standing on a lawn with their back towards each other at the distance of 100 m. Navneet's shadow fell exactly towards his left and side. After 15 minutes, Ravneet turns 135° anticlockwise. Which direction Ravneet is facing now?
1. North-East   2. North-West   3. East   4. South –East
Sol. **(1)**
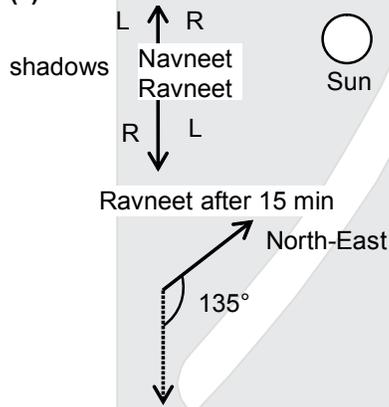
60. Find the missing number
2, 3, 7, _____, 2112
1. 36   2. 45   3. 46   4. 49
Sol. **(3)**

$$2\ ,\ 3\ ,\quad 7\qquad 46\qquad ,\quad 2112$$
$$2^2-1\quad 3^2-2\quad 7^2-3\quad 46^2-4$$

61. Ina code BH = 16, DO = 60 and TA = 20, then the code for BAT = ?
1. 20   2. 30   3. 40   4. 60
Sol. **(3)**
B H = 16   DO = 60
(2 × 8)   (4 × 15)
T   A = 20   B   A   T = 40
20 × 1   2 × 1 × 20

62. The figure given blow is prepared by some sticks and provides and equation that is incorrect. How many minimum numbers of sticks must be removed from the left hand side to make it a correct equation?

1. 1 2. 2 3. 3 4. 4

Sol. **(3)**

Minimum 3 have to remove

63. If   63578 is to 1415,
          56732 is to 185,
and   34124 is to 86,
then,   72648 is to ?

1. 1215 2. 1415 3. 1512 4. 1514

Sol. **(3)**

63578   : $\overset{14}{(6+3+5)}\overset{15}{(7+8)}$

56732   : $\overset{18}{(5+6+7)}\overset{5}{(3+2)}$

34124   : $\overset{8}{(3+4+1)}\overset{6}{(2+4)}$

72648   : $\overset{15}{(7+2+6)}\overset{12}{(4+8)}$

64. Two friends Mr. A and B stand according to figure 1. The two friends then interchange their positions as given in figure 2.

Figure – 1   Figure - 2
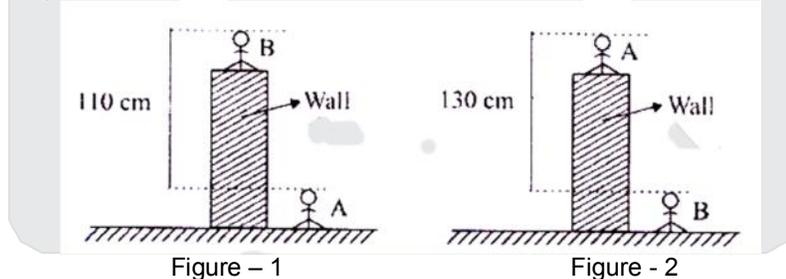
The height of the wall from the ground is _____ .

1. 115 cm 2. 120 cm 3. 127.5 cm 4. 130 cm

Sol. **(2)**

Assuming length of wall is Z
Length of B is Y
Length of A is X
So   Z – x + y = 110   … (1)   Z – y + x = 130   … (2)
       (1) + (2)
            2Z = 240
            Z = 120

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65. In a certain coding scheme, consonants and vowels are coded differently as illustrated below :
C is coded as 6.
Z is coded as 52.
E is coded as 9.
O is coded as 29.
Then find the sum of numerals in the coded version of FAITH.

1. 84   2. 85   3. 86   4. 87

Sol. **(3)**

	(9 × 2 – 1)			Consonant
F	A	I	T	H	(Place Value × 2)
(6×2)	(1×2 –1)	(20 × 2)	(8 ×2)		Vowel

12 + 1 + 17 + 40 + 16 = 86

66. In a class 20% of students are below 14 years of age. Out of the remaining students 10% are of the age 14-15 years and ratio of students who are between 15-16 years of age to student above 16 years of age is 3 : 2. If the number of students who are above 16 years is 72, what is the total number of students in the class?

1. 200   2. 250   3. 300   4. 400

Sol. **(2)**
Total students = x
20% are below 14 yrs.

Remaining = $x - x \times \dfrac{20}{100} = \dfrac{4x}{5}$

10% are of 14 – 15 yrs

Remaining = $\dfrac{4x}{5} - \dfrac{4x}{5} \times \dfrac{10}{100} = \dfrac{18x}{25}$

Now ratio of remaining
(15 – 16 yrs)   :   above 16 yrs
        3   :   2
And above 16 yrs are = 72
So   2y = 72
        Y = 36
And   3y = 3 × 36 = 108

Now $\dfrac{18x}{25} = 108 + 72$

⇒   x = 250

67. Study the figure given below representing a particular number in coded manner.
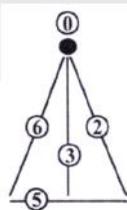
For example, the number 6825 coded by the following symbols-
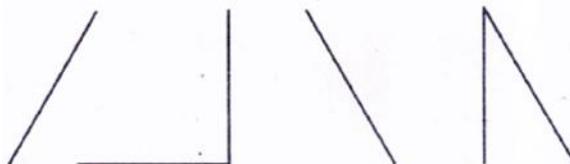
Based on the above information find the number coded for the following symbols.

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1. 63205   **2.** 11309   **3.** 11523   **4.** 65230

Sol. **(2)**

(6 + 5)	3	0	(6 + 3)
11	3	0	9

68. Five friends decided to play a game of badminton. Each of the five plays against every other friend. The winner gets two points for each game he or she wins and the loser gets zero. Then which of the following cannot represent the scores of five friends?

1. 4, 4, 4, 4, 4   **2.** 6, 4, 4, 4, 2   **3.** 8, 8, 2, 2, 0   **4.** 6, 6, 4, 2, 2

Sol. **(3)**

Simply if one is won all 4 games which are maximum then no other will play & win 4 games that why 8 points can't be repeated.

8, 8, 2, 2, 0

69. Study the given figure and answer the following question.
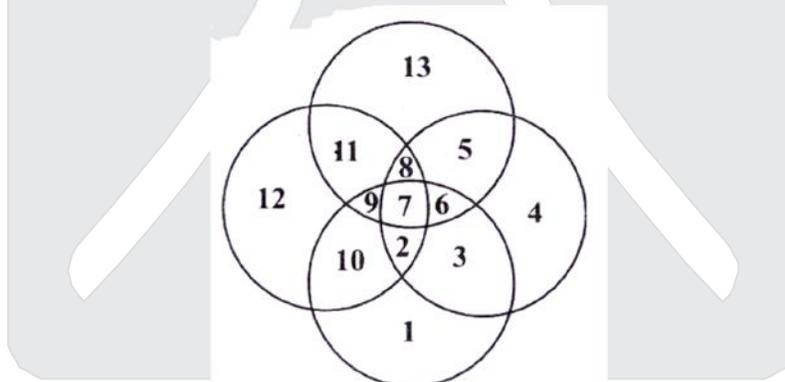
Let x denote sum of numbers present in at least 2 circles and y denote sum of numbers present in exactly 3 circles. Then x – y = _____ .

1. 11   **2.** 25   **3.** 36   **4.** 61

Sol. **(3)**

x = 11 + 5 +3 + 10 + 9 +8 + 6 + 2 + 7

y = 9 + 8 + 6 + 2

So   x – y = 11 + 5 + 3 + 10 + 7 = 36

70. Choose the correct mirror image of the following figure. If the mirror is placed as shown.
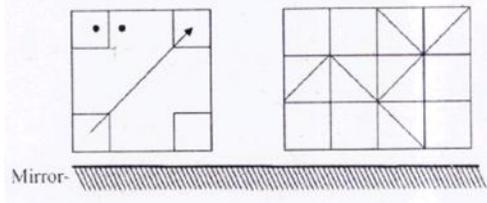
Mirror-

1.

2.

3.

4.

Sol. **(1)**
Mirror image
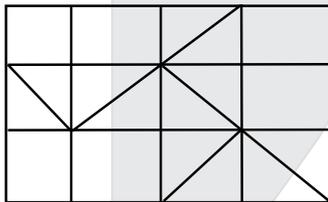
71. Observe the figures given below :
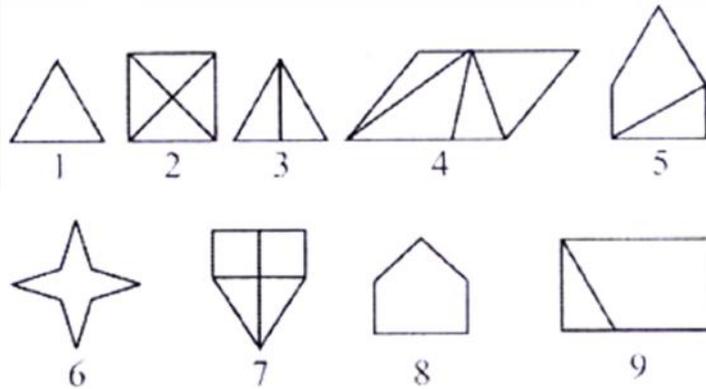
Based on the above figures identify the correct group of categorization ?

1. 1, 3, 6;   2, 4, 9;   5, 7, 8
2. 1, 2, 3;   4, 5, 8;   6, 7, 9
3. 1, 6, 8;   3, 5, 9;   2, 4, 7
4. 1, 3, 6;   2, 5, 7;   4, 8, 9

Sol. **(3)**

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72. Raju invited fried George for a dinner at his house. When George asked for the direction of Raju's house, Raju gave him the following instruction :

Proceed 140 metres south from your house then walk 200 metres to east. Then turn to north and walk 100 metres. After that, walk 160 metres to west.

What is the shortest distance between the two houses and the direction to Raju's house from George's house?

1. $40\sqrt{2}$ metres and north-west
2. $40\sqrt{2}$ metres and south-east
3. 80 metres and south-east
4. 80 metres and north-west

Sol. **(2)**

73. In a code language if 'APPEAL' is coded as '256572' and 'PLAY' is coded as '7259' then in the same language 'PEARL' will be coded as (each number code stands for unique alphabet) _____ .

1. 2 5 7 6 8   2. 2 5 3 8 7   3. 6 7 5 2 2   4. 2 5 6 7 9

Sol. **(1)**

APPEAL $\Rightarrow$ 256572

& PLAY $\Rightarrow$ 7259

A/P $\Rightarrow$ 2/5 (By Direct Coding)

& for   L $\Rightarrow$ 7

        Y $\Rightarrow$ 9

        E $\Rightarrow$ 6

So for   P E A R L

2, 5, 6 & 7 are confirm but for R one more number is appear.

So according to options, option (1) is correct.

Directions: (Questions 74- 76)

Five students Ujith, Mahi, Rizan, Sahir and Amelia appeared for an examination in English and Mathematics.

I. Sahir scored more marks than Amelia in Mathematics but scored less in English than Ujith and Mahi.

II. In Mathematics Rizan scored more marks than Amelia but less than what Mahi has scored.

III. Amelia scored more than Rizan in English and Rizan scord more than Mahi in English.

IV. Ujith scored more than Mahi in Mathematics but less than Rizan in English.

V. Sahir scored less than Mahi in Mathematics.

74. The least scorer in Mathematics and top scorer in English are respectively

1. Sahir and Ujith   2. Amelia and Amelia   3. Ujith and Sahir   4. Ujith and Ujith

75. Which of the following cannot be determined ?

1. Amelia scored more than Mahi in English.

2. Mahi scored more than Amelia in Mathematics.

3. Sahir scored less than Mahi both in Mathematics and English.

4. Ujith scored less than Mahi in English.

76. Which of the following is necessarily correct ?

1. rizan scored more than Sahir in Mathematics

2. Ujith scored more than Sahir both in Mathematics and English.

3. Sahir scored more than Ujith in Mathematics.

4. Rizan scored more than Ujith both in English and Mathematics.

Sol. **Questions 74 to 76**

In maths	Ujith mahi	Rizan / Sahir	Amelia
		Sahir / Rizan	
In English	Amelia Rizan	Ujith /mahi	Sahir
		Mahi/ Ujith	

74. **(2)**

Amelia & Amelia

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75. **(4)**

Ujith scored less than Mahi in English.

76. **(2)**

Ujith Scored more than Sahir both in mathematics & English.

77. The third day before 1 st January 2019 was Saturday. Which day will the fourth day of March 2020 be ?

1. Friday   2. Saturday   3. Wednesday   4. Thursday

Sol. **(3)**

1st Jan 2019 – Wednesday

$\dfrac{\text{Total odd days}}{2+3+0+4} = 9$ = 2 odd days

Ans. Thursday

78. Observe the given figure below
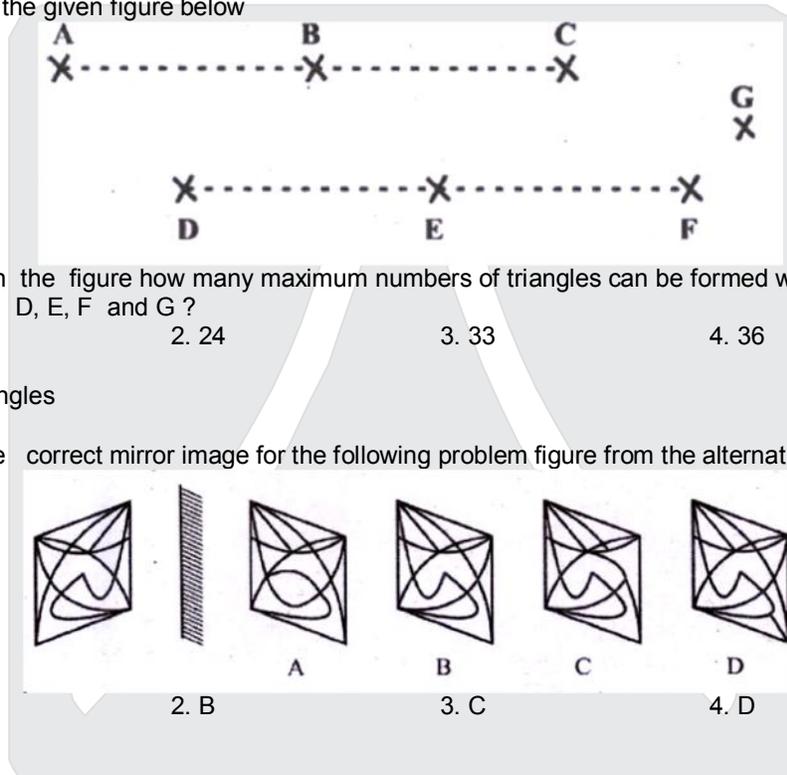
Based on the figure how many maximum numbers of triangles can be formed with the seven points A, B, C, D, E, F and G ?

1. 21   2. 24   3. 33   4. 36

Sol. **(3)**

(33) Triangles

79. Find the correct mirror image for the following problem figure from the alternatives.
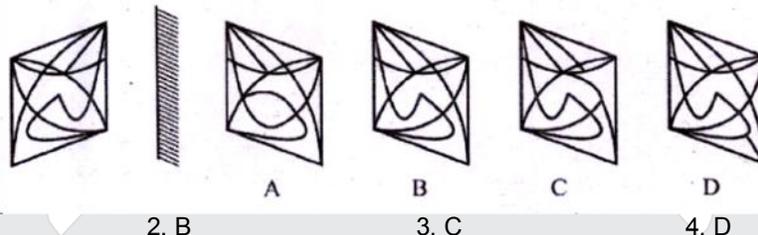
1. A   2. B   3. C   4. D

Sol. **(2)**

80. A circular disc is cut into two parts. One of the part is given as the question figure. Which is the other part ? Select from the options.
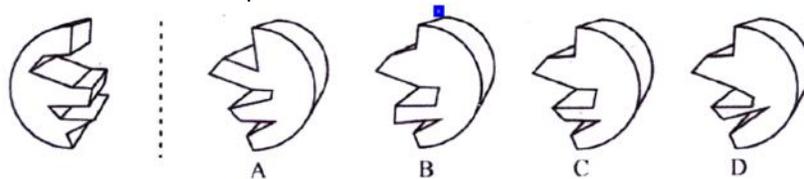
1. A   2. B   3. C   4. D

Sol. **(3)**

81. Two figure on transparent sheets are given on the left side. When the upper figure is exactly placed on the lower figure, find from the option figures how the resultant looks like.

1. A   2. B   3. C   4. D

Sol. **(4)**
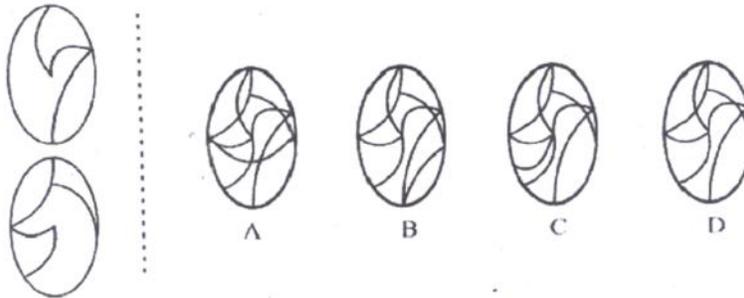
82. Find the missing part of the given figure from the alternatives which completes the pattern.

1. A   2. B   3. C   4. D

Sol. **(3)**
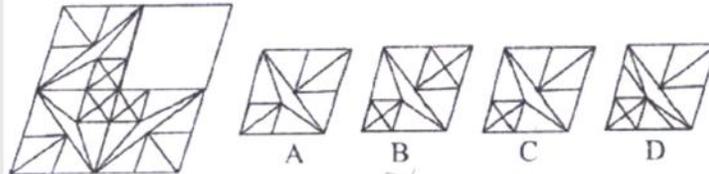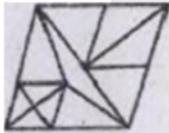
83. Find the correct water image for the following problem figure choosing from the alternatives.

1. A   2. B   3. C   4. D

Sol. **(2)**
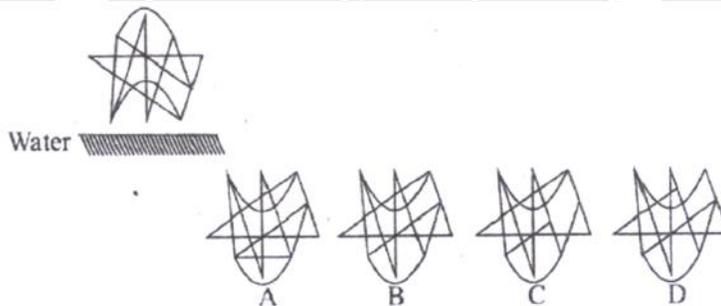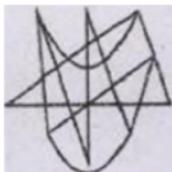
Directions : (Questions 84-88)

In the following questions, there are statements followed by conclusions. Choose the conclusion(s) which must logically follow from the given statements.

84. **Statements :**
A. Some grandmothers are mothers.
B.Some mothers are daughters.
C. All the daughters are married women.
Conclusions :
I. Some married women are mothers.
II. Some daughters are grandmothers.
III. No daughter is grandmother.
IV. Some mothers are grandmothers.
1. Only I and II   2. Only II and III   3. Only II and IV   4. Only I and IV

Sol. **(4)**
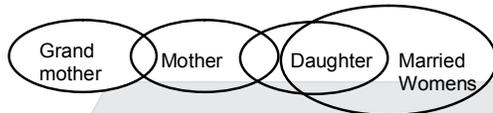
1. Some married women are mother.
4. Some mothers are grand mother.

85. **Statements :**
A. Some students are smart-working.
B. All intelligent are smart-working.
C. All the teachers are students.
Conclusions :
I. Some students are intelligent.
II. No teacher is smart-working.
III. Some intelligent are students.
1. Either I or II   2. Only I and II   3. None of I, II and III   4. Only I and III

Sol. **(3)**
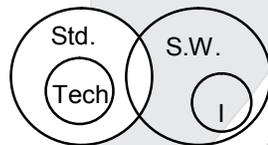
86. **Statements :**
A. Some students are orators.
B. All orators are goalkeepers.
C. Some goalkeepers are honest.
Conclusions :
I. Some students are honest.
II. Some goalkeepers are students
1. Only conclusion I   2. Only conclusion II
3. Both conclusion I and II   4. Neither conclusion I nor II

Sol. **(2)**

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Website :www.pccp.resonance.ac.in **| E-mail :** pccp@resonance.ac.in	**NTSE STAGE-II**
Toll Free : 1800 258 5555 **| CIN:** U80302RJ2007PLC024029	**MAT -2019 PAGE-23**
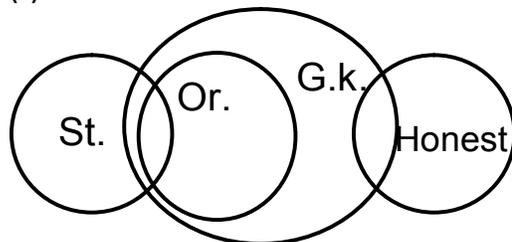
87. **Statements :**
A. Some men are women.
B. All women are teachers.
C. Some teachers are doctors.
Conclusions :
I. Some doctors are women.
II. Some teachers are women.
III. Some teachers are men.
IV. Some doctors are men.
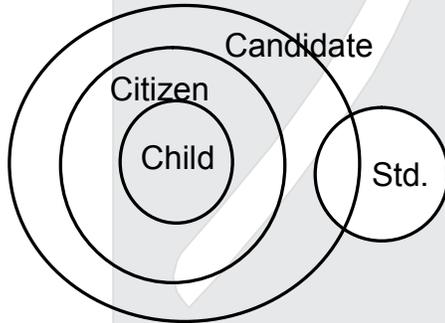1. Only I and II   2. Only I and IV   3. Only II and III   4. Only III and IV

Sol. **(3)**
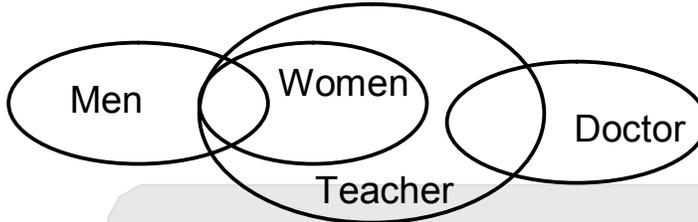
88. **Statements :**
A. Some candidates are students.
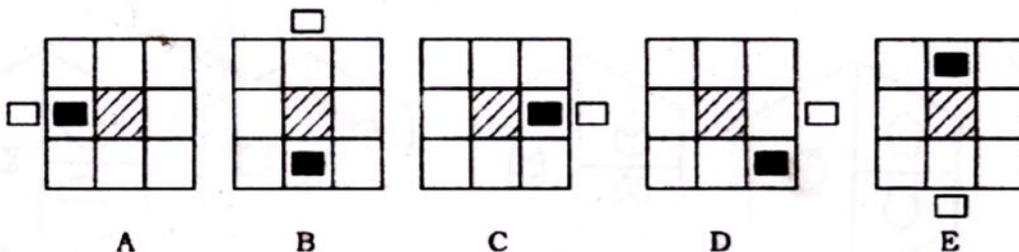B. All children are citizens.
C. all citizens are candidates.
Conclusions :
I. Some citizens are students.
II. Some candidates are children.
III. All children are candidates.
IV. No child is student.
1. Only I and II   2. Only II and III   3. Only III and IV   4. Only I, II and III

Sol. **(2)**

89. Study the figure given below :

Find which figure is to be removed, starting from A, so that all fit into a pattern.
1. B   2. C   3. D   4. E

Sol. **(3)**
Remove figure (D)

90. What is the minimum number of un-shaded boxes to be crossed for covering the shortest path from 'A' to 'B' (both exclusive) without retracting the path and without diagonal movements ?
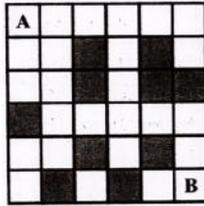
1. 8   2. 9   3. 10   4. 11
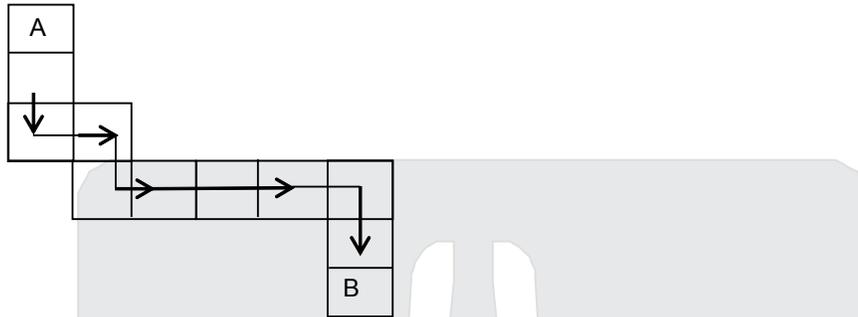
Sol. **(2)**

91. Observe the figure given below :
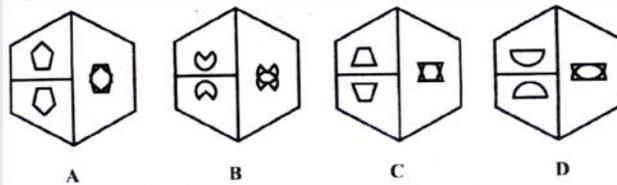
The odd one out from the given figure is _____ .

1. A   2. B   3. C   4. D

Sol. **(2)**

92. A river flows along the East-West direction. On a particular day in the morning Kisku was seen at a place 'A' located on the northern side of the river and on the same evening he was seen at a place 'B' located on the southern side of the river.

Following are the comments made by four friends. Paulomi, Mimee, Sabeena and Grayson.

I. Paulomi said, Kisku must have crossed the river only once.

II. Sabeena said, Kisku might have crossed the river four times.

III. Mimee said, he might have crossed it five times.

IV. Grayson said, he might have crossed it any number of times.

Choose the correct alternative from the following ;

1. Only I is correct   2. Only II is correct   3. I or II is correct   4. I and II are correct
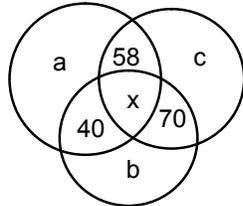
Sol. **(3)**
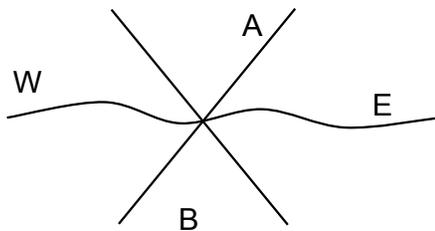
Directions : (Question 93-94)

In a town of 1000 people, 570 read Hindi newspaper, 424 read English newspaper and 254 read Punjabi newspaper. 40 read only Hindi and Punjabi newspaper; 58 read only Hindi and English newspaper; and 70 read only Punjabi and English newspaper. 100 read no newspaper.

93. How many people read only one newspaper ?

1. 570   2. 642   3. 914   4. 968

Sol. **(2)**

a + x = 570 – 40 – 58 = 472

c + x = 424 – 58 – 70 = 296

b + x = 254 – 40 – 70 = 144

_____

a + b + c + 3x = 912   ….. (i)

900 = a + b + c + 40 + 58 + 70 + x

a + b + c + x = 900 – (40 + 58 + 70) = 732   ….. (ii)

from equation (i) and (ii)

x = 90

a + b + c = 624.

94. How many people read all the three newspapers ?

1. 40   2. 58   3. 70   4. 90

Sol. **(4)**

95. Complete the given letter analogy.

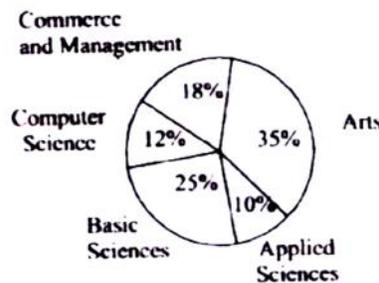**LTFQIW : YGSJVD : : DOIYKV : ?**

1. QBVIXL   2. WLRBCI   3. QLVBXE   4. QBVLXJ

Sol. **(1)**

Sum of place values of LTFQIW = 87

Sum of place values of YGSJVD = 87

Sum of place values of DOIYKV = 86

From option

Sum of place values of option (1) QBVIXL = 86.

96. The given pie-diagram shows the streams opted by students at senior-secondary level.

If sum of the angles for the students who opted different streams is 144° then the steams are _____.

1. Arts, Applied Sciences

2. Basic Sciences, Computer Science

3. Basic Science, Commerce and Management

4. Applied Sciences, Computer Science, Commerce and Management

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Sol. **(4)**

$$144° = \frac{144°}{360°} \times 100 = 40\%$$

So = Applied sc + computer sc + commerce & management

= 10 + 12 + 18

= 40%

97. Four relation have been given as alternatives (p), (q), (r), (s). out of which only one becomes acceptable if the signs, + and ÷ and the numbers, 4 and 5 are mutually interchanged. Identify that relation.

(p) 24 + 8 × 4 = 20 ÷ 5

(q) 20 ÷ 4 × 16 + 5 = 75

(r) 3 × 24 + 5 = 16 ÷ 4

(s) 20 ÷ 5 – 6 = 3 × 30 + 4

1. (p)   2. (q)   3. (r)   4. (s)

Sol. **(4)**

+ → ÷

4 → 5

(s) 20 ÷ 5 – 6 = 3 × 30 + 4

20 + 4 – 6 = 3 × 30 ÷ 5

18 = 18

98. There are 20 steps to go to the first floor of a building from the ground floor.

A child starts climbing up from the first step of the ground level. Mother starts coming down from the fourth step from the floor level of the first floor.

If both have started at the same time with same speed, at which step would they meet counting from the first step from the floor level of the first floor?
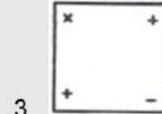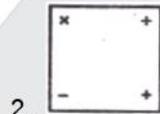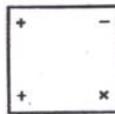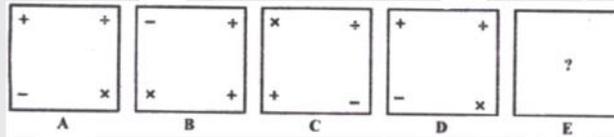
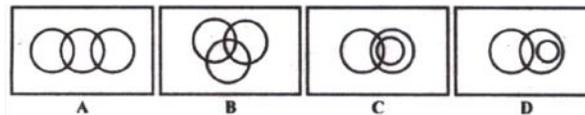1. 9   2. 10   3. 11   4. 12

Sol. **(4)**

99. The following question consists of four problem figures marked as A,B,C and D. Select a figure in place of '?' for E which will continue the series established by the four problem figures, A,B,C,D.

Sol. **(4)**

100. Which one of the following venn diagrams represents the relation among men, doctors and patients in a hospital?

1. A   2. B   3. C   4. D

Sol. **(1)**

Men., doctors., patients.