

**MENTAL ABILITY TEST**  
**(For Students of Class X)**

Time : 120 Minute

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 instrument gives on the OMR sheet for marking the answers.
3. Write your **eight -digit roll number** as allowed to you in the admission card very clearly on the test- booklet and darken the appropriate circles on the OMR sheet as per instruction given.
4. Write down acid darken **test-booklet number** in the appropriate circles on the **OMR sheet** as per instructions given.
5. There are **100 questions** in the 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 booklet but not on the **OMR sheet**.
8. Each correct answer will be awarded one mark.
9. **THREE WILL BE NO NEGATIVE MARKING.**
10. **Please return only the OMR sheet to the invigilator after the test.**
11. The English version of the question paper will be considered as final in case of any dispute arising out of variation in translation version.

**PLEASE TURN TO THE NEXT 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 है।
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-अकीय रोल नम्बर** का प्रश्न पुस्तिका और **ओएमआर-पत्र** पर बिलकुल स्पष्ट रूप से लिखिए और उपर्युक्त गोलों का काला कीजिए।
4. दिए गए निर्देशों के अनुसार **ओएमआर-पत्र** पर प्रश्न-पुस्तिका संख्या लिखिए और उपर्युक्त गोलो का काला कीजिए।
5. इस परीक्षा में **100 प्रश्न** है। सभी प्रश्न अनिवार्य है।
6. चूँकि इस प्रश्न-पत्र के लिए निर्धारित समय बहुत सीमित है इसीलिए इसका सयोग उपयोग कीजिए और किसी प्रश्न पर बहुत अधिक समय न लगाइए।
7. **रफ कार्य** पुस्तिका में कहीं भी किया जा सकता है, किन्तु **ओएमआर-पत्र** अलग कागज पर नहीं।
8. प्रत्येक सही उत्तर के लिए एक अंक प्रदान किया जाएगा।
9. **गलत उत्तर के लिए कोई अंक नहीं काटा जाएगा।**
10. कृपया परीक्षा के पश्चात केवल **ओएमआर-पत्र** ही **निरीक्षक को वापस कीजिए।**
11. अनुवादित सस्करण में अंतर से उठे किसी भी विवाद को स्थिति में प्रश्न-पत्र के अंग्रेजी सस्करण को निर्णायक माना जाएगा।

कृपया पृष्ठ पलटिए और अपना कार्य आरम्भ कीजिए।

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## METNAL APTITUDE TEST (MAT) PAPER & HINTS & SOLUTION

1. The following number series follows a particular pattern. One of the numbers in the given series is wrong. Identify the wrong number:

3 15 63 129 1023 4095

1. 15

2. 63

3. 129

4. 4095

Ans. (3)

Sol. 3, 15, 63, 129, 1023, 4095

$$2^2 - 1 = 3$$

$$2^4 - 1 = 15$$

$$2^6 - 1 = 63$$

$$2^8 - 1 = 127$$

$$2^{10} - 1 =$$

129 is wrong term

2. Rohit at a wedding asked to find the seating arrangement of the guests. There are eight guests, names Mrs. Hudson, John, Azhar, Sunita, Amber, Rajesh, Mahima and Vishal, who are supposed to sit in two rows of four chairs each, facing each other. The following information was provided:

- Amber is between Mrs. Hudson and Vishal, but just opposite to John.
- Rajesh is at one end of a line and is just next in the right of the John; or Rajesh is just after John.
- Mahima, who is sitting at one end of a row, is just diagonally opposite to Mrs. Hudson (who is at the other end of the opposite row).

Which of the following statements is/are definitely true?

I. Vishal is just next to Amber.

II. Azhar is just near to Vishal.

III. Mahima is either next or opposite to Sunita

IV. Sunita is diagonally opposite to Rajesh

1. Only I and III

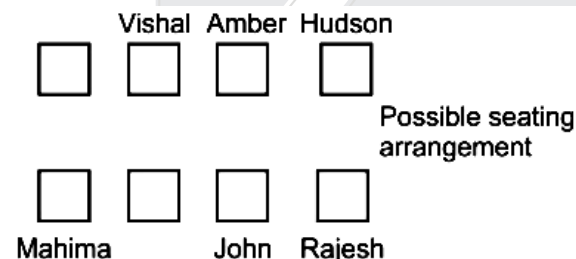
2. Only II and IV

3. Only III

4. Only I, III and IV

Ans. (1)

Sol.



Statements I and III are definitely true.

### Direction (Question 3-4)

Read the following passage and answer the questions given below:

In the administrative structure of an academic institution, the highest body is the Executive Council (EC). There are Academic Programme Committee (APC), Finance Committee (FC), Planning Division (PD) who have to report to the EC, the Vice Chancellor chairs the APC, FC & PD while the Chancellor chairs the EC, The Schools of Studies (Science/Humanities/Social Science/Commerce/Education/Engineering and Technology) come under the jurisdiction of APC.

3. The faculty members of the School of Commerce report to the:

1. APC

2. FC

3. PD

4. EC

Ans. (1)

Sol. All Faculties will report to Vice-Chancellor.

4. Which among the following statement is correct in respect of hierarchy?  
 1. EC, APC and PD are at the same level.  
 2. APC, PD and FC are at the same level.  
 3. EC, APC and FC are at the same level.  
 4. APC is above EC which is above FC and PD

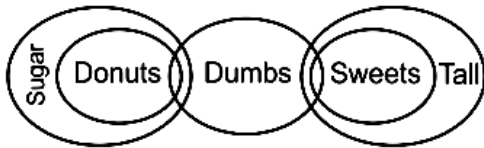
Ans. (2)

5. In the following question, five statements have been provided which are to be considered as true, even if they do not corroborate our real life experiences. These are followed by four conclusions as the alternatives. Now in the given statements, which one among the four conclusions is definitely false  
**Statements:** Some donuts are dumb. Some dumbs are sweets. All sweets are tall. No tall is a donut. All donuts are sugar.

1. Some sweets are sugar  
 2. Some dumbs are tall  
 3. Some sugars are not dumb  
 4. Some tall are dumb

Ans. (1)

Sol.



6. 'BUILD' is related to 'CAWRQ', such that the letters having reflection symmetry with respect to a mirror placed on the right side at the same positions. Which among pairs bears the same relationship?  
 1. EARTH : NPOQX    2. CROWN : DABCM    3. HOUSE : TRSHE    4. LAUGH : GHTZL

Ans. (4)

Sol. BUILD → CAWRQ  
 UI and AW same mirror image as the letter.  
 ∴ LAUGH : GHTZL

7. An old couple with memory issues had forgotten their anniversary and were trying to recollect the date. The lady clearly remembers that they got married in the month of February of the year 1955. The man clearly remembers that he celebrated his 21<sup>st</sup> birthday with same year, and it was Thursday, the 3<sup>rd</sup> of February, as a bachelor. The lady then remembers that they definitely got married before the 13<sup>th</sup> of February. The man knows it had to be a weekend, since he was working on other days from Monday to Friday. The lady and the man then agree that it was a Sunday. Help them find the date of their wedding which was in the year 1955?

1. 5<sup>th</sup> of February    2. 6<sup>th</sup> of February    3. 8<sup>th</sup> of February    4. 12<sup>th</sup> of February

Ans. (2)

Sol. 21<sup>st</sup> Birthday 1955 Thursday  
 3 Feb. 1955 Thursday.  
 marriage is between 3 Feb to 13 Feb  
 weekend days are 5,6 and 12  
 and only 6 fall on Sunday

**Direction (Question 8-9):**

Read the following information carefully and answer the questions given below:

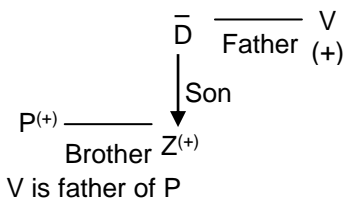
- (i) A '+' B means 'A' is the mother of 'B'  
 (ii) A '-' B means 'A' is the wife of 'B'  
 (iii) A 'x' B means 'A' is the brother of 'B'  
 (iv) A '÷' B means 'A' is the son of 'B'

8. If P 'x' Z ÷ D '-' V, then how is 'V' related to 'P' ?

1. Mother    2. Brother    3. Daughter    4. Father

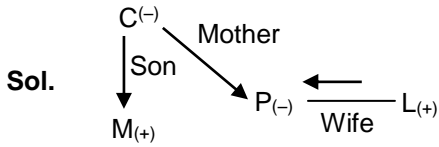
Ans. (4)

Sol.



9. If M is the son of C and P is the mother of L, then how is 'M' related to 'L' ?  
 1. Son-in-law                      2. Brother                      3. Son                      4. Brother in law

Ans. (4)



M is brother in law of L

10. The objects or words given below from a certain group. Which one of the following does not belong to the group?  
 Spectacles, Earrings, Bicycle, Shoes, Bangles.

1. Bicycle                      2. Shoes                      3. Earrings                      4. Spectacles

Ans. (1)

11. There is a 3-digit code to open a lock. There are four 3-digit numbers and hints have been provided corresponding to those numbers to crack the code. Crack the code and mark that as your answer.

- 821—one digit is correct but wrongly placed.  
 379—None of the digit are correct.  
 486—Two digit are correct but wrongly placed.  
 538— Two digit are correct and rightly placed.

1. 528                      2. 845                      3. 485                      4. 548

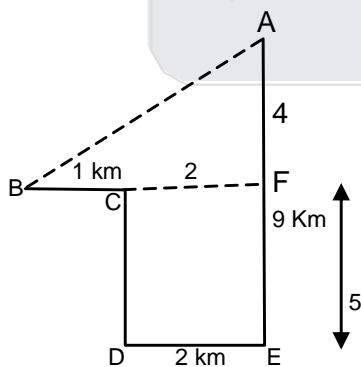
Ans. (4)

12. Rohan moves 1 km to East and then turn to South and moves 5 km. He again turns to East and walks 2 km. After this, he turns to North and moves 9 km. What is the distance from his starting point to the present point?

1. 13 km                      2. 08 km                      3. 05 km                      4. 16 km

Ans. (3)

Sol.



$$AB^2 = 3^2 + 4^2$$

$$AB^2 = 9 + 16$$

$$AB^2 = 25$$

$$AB = 5 \text{ km}$$

**Direction (Questions 13-15)**

In the following questions, the question is followed by two Statements (i) and (ii) You have to determine whether.

Only statement (i) is sufficient to answer the question.

Only statement (ii) is sufficient to answer the question.

Both statement (i) and statement (ii) are needed to answer the question.

Neither statement (i) nor statement (ii) is sufficient to answer the question.

13. What is the date today?

**Statements:**

(i) We are in the second week of March

(ii) The date today is an odd number.

1. Only statement (i) is sufficient to answer the question.

2. Only statement (ii) is sufficient to answer the question.

3. Both statement (i) and statement (ii) are needed to answer the question.

4. Neither statement (i) nor statement (ii) is sufficient to answer the question.

**Ans. (4)**

**Sol.** Neither statement are sufficient to answer.

14. What is the two-digit number?

**Statement:**

(i) Both the digits of the two-digit number are even and the sum of their digit is 12.

(ii) The two digits of the two-digit number are not the same.

1. Only statement (i) is sufficient to answer the question.

2. Only statement (ii) is sufficient to answer the question.

3. Both statement (i) and statement (ii) are needed to answer the question

4. Neither statement (i) nor statement (ii) is sufficient to answer the question.

**Ans. (4)**

**Sol.** 48

84

66

Both digits not same so 66 is rejected

15. Who is the tallest amongst the four friends Kimaya, Aashvi, Vihana and pari?

**Statement:**

(i) Aashvi is not the tallest but taller than Vihana and Kimaya.

(ii) Vihana is the shortest amongst the four friends.

1. Only statement (i) is sufficient to answer the question.

2. Only statement (ii) is sufficient to answer the question.

3. Both statement (i) and statement (ii) are needed to answer the question.

4. Neither statement (i) nor statement (ii) is sufficient to answer the question.

**Ans. (1)**

**Sol.**  $V < K < A < P$  Pair is tallest

16. In the word 'PACEMAKING', if the first letter is interchanged with the second letter, the third letter is interchanged with the fourth letter and so on till the ninth letter is interchanged with the tenth letter, what would be the seventh letter from the right after such arrangement?

1. E

2. C

3. K

4. I

**Ans. (2)**

**Sol.** P A C E M A K I N G

←

A P E C A M I K G N

←

'C' is the letter

17. In the following letter series, find the letters to replace the question-mark(?) to complete the series:

ZXW VTS RPO NLK ? FDC

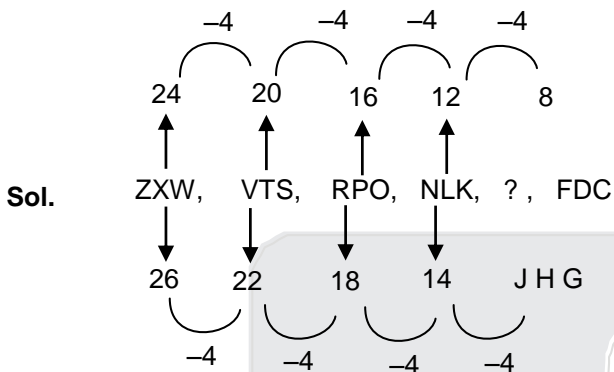
1. JIH

2. GHJ

3. JHG

4. IHG

Ans. (3)



18. A museum has an average of 520 visitors on Sunday and an average of 100 visitors on other days. What is the average number of visitors per day in a month of 30 days beginning with a Sunday?

1. 220

2. 170

3. 180

4. 300

Ans. (2)

Sol.

Total Sunday = '5'

$$\text{Avg} = \frac{5 \times 520 + 25 \times 100}{30}$$

$$= 170$$

19. Rishi decides to drive to a party. From his house, he drives 10 km North. There he decides to pick-up his friend, so he takes a left turn and drives for another 2 km. On picking-up his friend, he has to take a right turn and drive for another 5 km. Finally he takes another right turn and drives for another 2 km to reach his destination. How many kilometers Rishi would have required to drive, had he drove straight from his house to the party?

1. 15 km

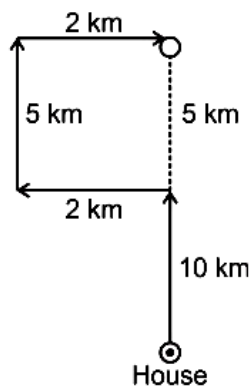
2. 12 km

3. 10 km

4. Cannot be determined

Ans. (1)

Sol.



Total distance from his house = 15 km

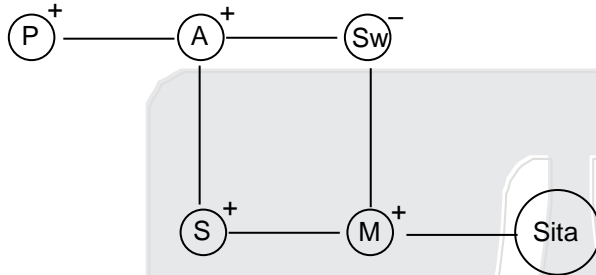
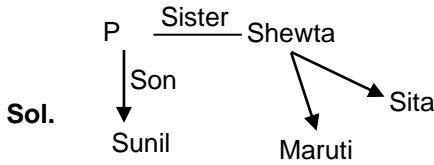




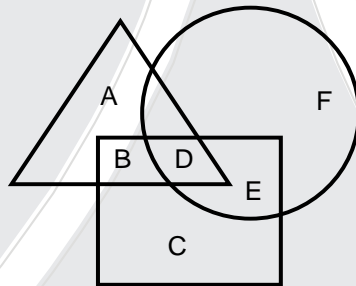
24. Sunil is the son of Anil, Shweta Anil's sister has a son Maruti and daughter Sita, Prem is the maternal uncle of Maruti. How is Sunil related to Maruti.

1. Cousin                      2. Maternal uncle                      3. Brother                      4. Nephew

Ans. (1)



25. In the given figure, the triangle represents girls, the square represents sports persons, and the circle represents coaches. The portions in the figure which represents girls are sports persons but not coaches is labelled as:



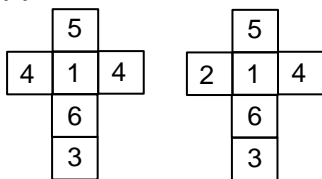
1. A                      2. B                      3. D                      4. E

Ans. (2)

26. A dice is numbered from 1 to 6 in different ways. If 1 is adjacent to 2, 4 and 6, then which of the following statement is necessarily true?

1. 2 must be opposite to 6                      2. 1 must be adjacent to 3  
3. 3 must be adjacent to 5                      4. 3 must be opposite to 5

Ans. (3)



Sol.

According to given information 1 is adjacent to 2, 4 and 6 using this data we can arrange numbers 1 to 6 using this data we can arrange numbers 1 to 6 mention above figure .  
So only option (3) must be true.

27. In certain code language sun shines brightly is written as 'ba lo sul', 'houses are brightly lit' as "kado ula ari ba' and 'light comes from sun" as 'dopi kup lo nro'. What code words are written for 'sun' and 'brightly'?

1. ba, sul                      2. sul, lo                      3. lo, ba                      4. ba. lo

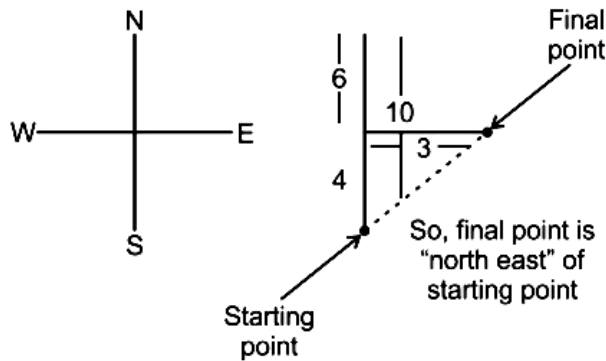
Ans. (3)





30. Kunal walks 10 km towards North. From there, he walks 6 km towards South. Then, he walks 3 km towards East. How far and in which direction is he, with reference to his starting point ?  
 1. 5 km West                      2. 7 km West                      3. 7 km East                      4. 5 km North-East

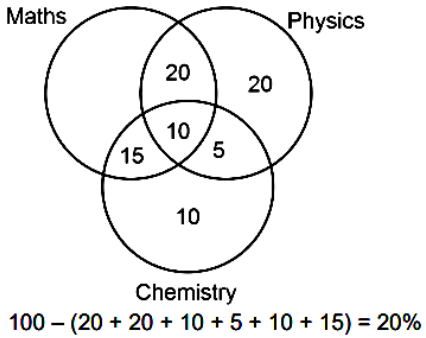
Ans. (4)  
Sol.



By Pythagoras theorem, final point is 5 km far from starting point.

31. In a class 45% students study Mathematics, 55% study Physics, 40% study Chemistry, 30% study Mathematics and Physics, 15% study Physics and Chemistry, 25% study Mathematics and Chemistry and 10% Study all three subjects. What percentage do not read any subject?  
 1. 10%                      2. 15%                      3. 25%                      4. 20%

Ans. (4)



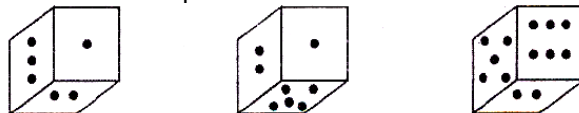
Sol.

32. In a code language 'SOLID' is written as 'WPSLPIMFHA'. What does the code 'ATEXXQIBVO' represent?  
 1. EAGER                      2. WAFER                      3. WAGER                      4. WATER

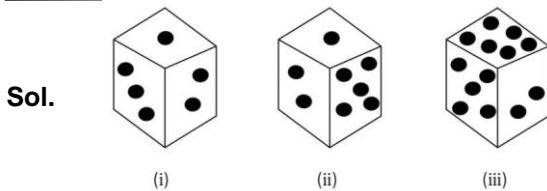
Ans. (4)

Sol. SOLID → WPSLPIMFHA  
 Here WP is correction of S  
 $19 + 4 = 23^{\text{rd}}$  letter (W)  
 $19 - 3 = 16^{\text{th}}$  letter (P)  
 Similarly all letters are coded.  
AT EX XQ IB VO  
 ↓ ↓ ↓ ↓ ↓  
 W A T E R  
 So Answer for

33. Below are depicted the three different positions of a dice. Find the number opposite to 1 dot:

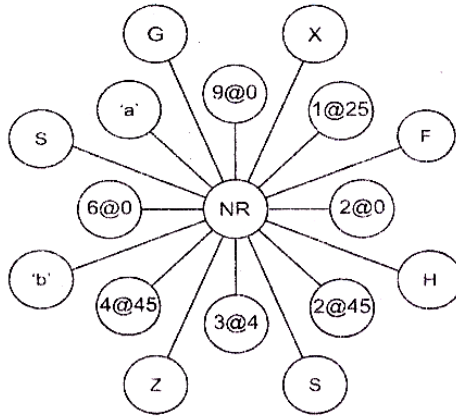


1. 2                      2. 3                      3. 4                      4. 6  
 Ans. (4)

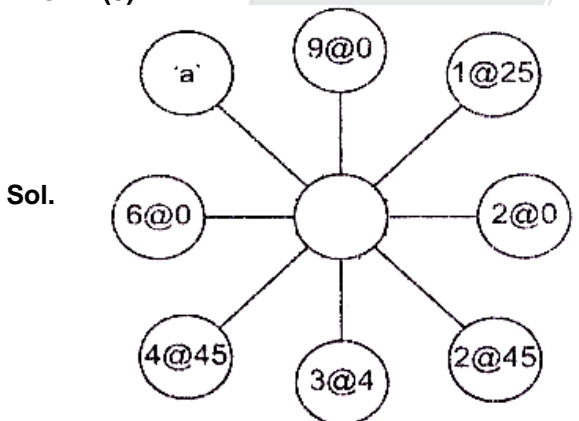


from due (ii) and (iii) is opposite to 6  
So, option (4) is correct.

34. Find the missing values of 'a' and 'b'?



Ans. (3) 1. 8@3, B      2. 7@3, G      3. 7@25, M      4. 8@25, L



Different between      1:25 and 2:00 → 35 min  
   2:00 and 2:45 → 45 min  
   2:45 and 3:40 → 55 min

Hence, According this (a) → 7@25

**Direction (Question 35-36):**

The reasoning power and logical power of six students of a class are as follows:

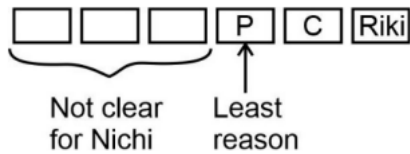
1. Ruchi is more logical and have higher reasoning power than Puchi but less logical and reasoning power than Sri.
2. Nichi is more logical than Chiki who is not as logical as Puchi.
3. The least logical student has highest reasoning power.
4. The student having least reasoning power would be fourth if they all stood in a queue according to their logical power and queue started from highest logical student.
5. Nichi has lower reasoning power than Riki but higher than Chiki having better reasoning power than Sri.

35. Which of the following statement is correct?

1. Nichi has highest reasoning power in the group.
2. Puchi is most logical in the group
3. Ruchi has higher reasoning power than Nichi.
4. Riki has least logical power.

Ans. (4)

**Sol.** Logical - Sri > Ruchi > Puchi Nichi > Chiki Puchi > Chiki Reasoning - Sri > Ruchi > Puchi Riki > Nichi > Chiki > Sri > Ruchi > Puchi Logical order -



**36.** Whose position in the logical power queue cannot be determined from the given statement?

1. Puchi                                      2. Nichi                                      3. Sri                                      4. Chiki

**Ans.** (2, 3)

**Direction (Question 37-39):**

In an Immunization drive in a hospital, receptionist was asked to allow one male patient when color-code announced is Blue (B), one female patient when color-code announced is Pink (P), two male and three female patients when color-code announced is Green (G). She had been asked to allow exit of one male and two female patients from the doctor's room when announced Red (R). The 1<sup>st</sup> sequence followed by receptionist is:

[BPGBBGPBRPBPBGGRBGBBBGPP]

In the 2<sup>nd</sup> sequence, the replaced 'Green' at odd position with 'Blue' code and 'Pink' at even position with 'Red' code.

**37.** How many female patients are still left in the hospital for immunization?

1. 18                                      2. 21                                      3. 24                                      4. 25

**Ans.** (1)

**Sol.** In first sequence number of females entered  
= 21 + 6 [as 7G and 6P]  
= 27  
Females exited = 6 [as 3R]  
In second sequence number of females entered  
= 9 + 2 = 11 [ as 3G and 2P]  
Females exited = 14 [ as 7R]  
∴ Total females remaining = Number of females entered – number of females exited  
= (27 + 11) – (6 + 14)  
= 18

**38.** In a certain way.

**DIAMOND is coded as [2233113352722]**

**BRONZE is coded as [223335272135] then SILVER will be coded as**

1. [223322325527]      2. [223311332722]      3. [1933511355213]      4. [1933223211529]

**Ans.** (4)

**Sol.** D I A M O N D                      22 33 1 13 35 27 22  
4 9 1 13 15 14 4

B R O N Z E                      2 233 35 27 213 5  
2 18 15 14 26 5

S I L V E R                      19 33 223 211 5 29 [From options]  
19 9 12 22 5 18

**39.** The wall clock at Zebo's house was not working properly. Zebo noticed on Tuesday noon that clock is two minutes slow. He planned to observe the behavior of clock for a week. On next week same day, he noticed that clock was 4 min 48 sec fast at 02:00 P.M. When did the clock show the correct time?

1. 12:48 P.M. on Wednesday                      2. 02:12 P.M. on Thursday  
3. 02:00 P.M. on Thursday                      4. 03:36 P.M. on Wednesday

**Ans.** (3)

**Sol.** Sol. Time from Tuesday noon to following Tuesday 2 P.M. =  $7 \times 24 + 2 = 170$  hours  
Total time gained = 2 min + 4 min 48 sec = 408/60 min.

408/60 min.gain in 170 hours

1min Gain in  $170 \times (60/408)$

2min Gain in  $170 \times (60/408) \times 2 = 50$  hrs.

Tuesday 12 : 00 PM + 50 hours = 2 : 00 P.M. on Thursday.

**Direction (Question 40):**

A clock is so placed that at 12 Noon its minute hand points towards West. The mathematical operators have been placed at the minute hand position at particular time given below:

'<' at fifteen minutes before noon

'=' at ten minutes past two

'>' at half past six

'x' at twenty minutes past seven

'+' at quarter past eight

'-' at nine O'clock

'+' at five minutes to ten

**40.** Which is the correct mathematical expression based on above information?

1. [6N4SW8NE2E9W6NE2SW3E3NE2SW1W5]

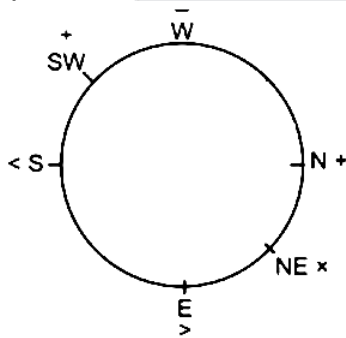
2. [6S4NW8SE2E9W6SE2NW3E3SE2NW1W5]

3. [6N4SW8NE2W9E6NE2SW3E3NE2SW1E5]

4. [6S4SW8NW2W9E6NW2E3W3NE2N1E5]

**Ans. (1)**

**Ans. (1)**



$$6 + 4 \div 8 \times 2 > 9 - 6 \times 2 \div 3 > 3 \times 2 \div 1 - 5$$

$$7 > 5 > 1$$

**41.** In a coded language, the mathematical operators have been placed in clock. The position of operator is the position of minute hand. The coding is as follows '+' at 7:25, 'x' at 5:15, '+' at 9:00, '<' at 10:55, '>' at 3:30, '=' at 1:05, '-' at 11:25.

If positions of '+', '-', 'x', '<', '>', '=' changed by rotation of angle 30°, 60°, 90°, 120°, 150°, 180°, 210° in the clockwise and anti-clockwise alternatively, then which of the following is correct statement?

1.6 (11:15) 4 (5:30) 1 (8:40) 2 (7:30) 3 (3:00) 1 (5:30) 8 (8:40) 4

2.6 (7:30) 4 (11:15) 1 (5:30) 2 (8:40) 3 (3:00) 1 (1:40) 8 (11:20) 4

3. 6 (11:15) 4 (11:20) 1 (8:40) 2 (3:00) 3 (1:40) 1 (7:30) 8 (5:30) 4

4. 6 (8:40) 4 (5:30) 1 (5:30) 2 (7:30) 3 (1:40) 1 (11:15) 8 (3:00) 4

**Ans. (1)**

**Sol.** + → 7:25 + 0:05 = 7:30

x → 5:15 + 0:15 = 5:30

÷ → 9:00 - 0:20 = 8:40

< → 10:55 + 0:25 = 11:20

> → 3:30 - 0:30 = 3:00

= → 1:05 + 0:35 = 1:40

- → 11:25 - 0:10 = 11:15

(1)  $6 - 4 \times 1 \div 2 + 3 > 1 \times 8 \div 4$

$4 + 3 > 2$  (correct)

(2)  $6 + 4 - 1 \times 2 \div 3 > 1 = 8 < 4$



45. The mathematical operators i.e. +, −, ×, ÷, =, < had been placed at the minute hand position of the clock at clockwise angles of 78°, 162°, 210°, 114°, 240° and 312° respectively. The operators position had been rotated by 5 min, 7 min, 9 min, 11 min, 13 min and 15 min respectively clockwise and anti clockwise alternatively. Find the correct combinations of operators in the form of time which satisfy the given equation:

$$[8 \ ? \ 20 \ ? \ 5 \ ? \ 9 \ ? \ 3 \ ? \ 38]$$

1. 7:08, 9:18, 10:20, 2:53, 6:44  
3. 6:44, 10:20, 9:18, 2:53, 7:08

2. 7:08, 6:44, 10:20, 9:18, 2:53  
4. 6:44, 7:08, 9:18, 10:20, 2:53

Ans. (4)

Sol.

$$+ \rightarrow 78^\circ \rightarrow 13 + 5 = 18$$

$$- \rightarrow 162^\circ \rightarrow 27 - 7 = 20$$

$$\times \rightarrow 210^\circ \rightarrow 35 + 9 = 44$$

$$\div \rightarrow 114^\circ \rightarrow 19 - 11 = 08$$

$$= \rightarrow 240^\circ \rightarrow 40 + 13 = 53$$

$$< \rightarrow 312^\circ \rightarrow 52 - 15 = 37$$

$$6 : 44, 7 : 08, 9 : 18, 10 : 20, 2 : 53$$

$$\begin{array}{cccccc} \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \times & & \div & & + & & - & & = \end{array}$$

$$8 \times 20 \div 5 + 9 - 3 = 38$$

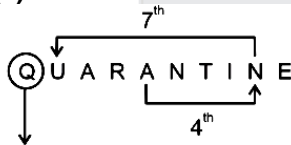
$$8 \times 4 + 6 = 38$$

$$38 = 38$$

46. In the word 'QUARANTINE', which letter comes seven letters before the letter which comes four letters after the second appearance of the first letter to occur twice times in the word?

1. Q                      2. U                      3. A                      4. N

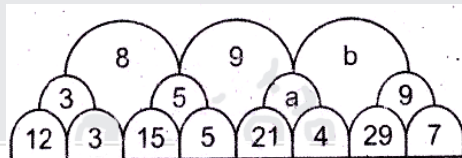
Ans. (2)



Sol.

Letter before 7<sup>th</sup> letter

47. Find the missing values of 'a' and 'b'.



Ans. (2)

1. 4,5

2. 5, 7

3. 7, 10

4. 7, 5

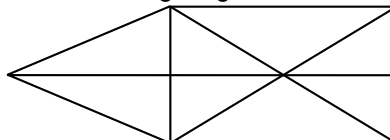
Sol.

$$12+3+15+5 = 35 \rightarrow 3+5 = 8$$

$$15+5+21+4 = 45 \rightarrow 4+5 = 9$$

$$21+4+29+7 = 61 \rightarrow 6+1 = 7 \text{ (b)}$$

48. How many triangles are there in the following diagram ?



Ans. (3)

1. 15

2. 16

3. 17

4. 18



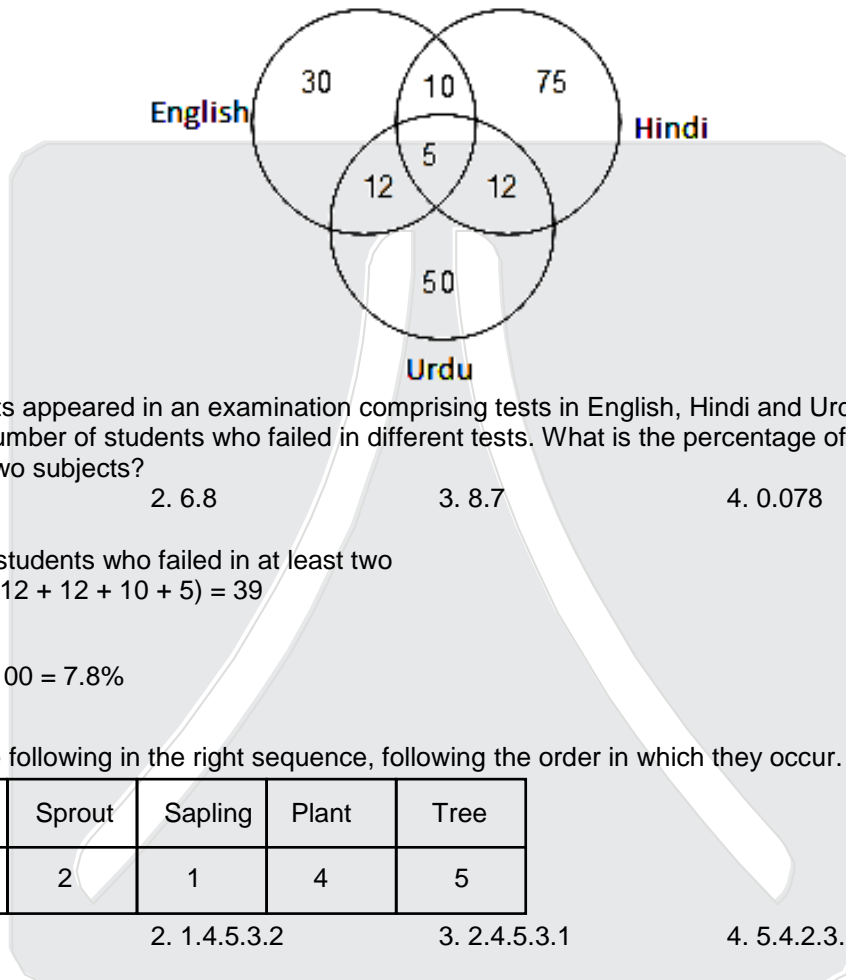
49. There is a certain relationship between words on one side of :: and one word is given on another side of :: while another word is to be found from given options, having the same relation with the word as the words of the given pair. Choose the correct word from the given alternatives:

Lion : Claws :: Eagle: \_\_\_\_\_

1. Beak                                      2. Talon                                      3. Feather                                      4. Feet

Ans. (2)

50. Study the diagram given below:



500 students appeared in an examination comprising tests in English, Hindi and Urdu. The diagram gives the number of students who failed in different tests. What is the percentage of students who failed in at least two subjects?

1. 7.8                                      2. 6.8                                      3. 8.7                                      4. 0.078

Ans. (1)

Sol. Number of students who failed in at least two subjects = (12 + 12 + 10 + 5) = 39

$$\% = \frac{39}{500} \times 100 = 7.8\%$$

51. Arrange the following in the right sequence, following the order in which they occur.

Seed	Sprout	Sapling	Plant	Tree
3	2	1	4	5

1. 3.2.1.4.5                                      2. 1.4.5.3.2                                      3. 2.4.5.3.1                                      4. 5.4.2.3.1

Ans. (1)

Sol. Seed → Sprout → Sapling → Plant → Tree.

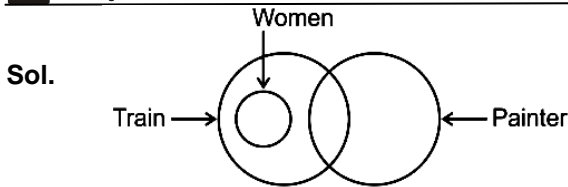
52. The statements below are followed by two conclusions labelled I and II. Assuming that the information in the statement is true, even if it appears at variance from established facts, decide which conclusion(s) logically and definitely follow(s) from the information given in the statements. Statements:

- I. All women are trains.  
II. Some trains are painters.

Conclusions:

- I. Some trains are women.  
II. Some women are painters.  
1. Only Conclusion I follows  
2. Only Conclusion II follows  
3. Both I and II Conclusions follow  
4. Either Conclusion I or Conclusion II follows

Ans. (1)



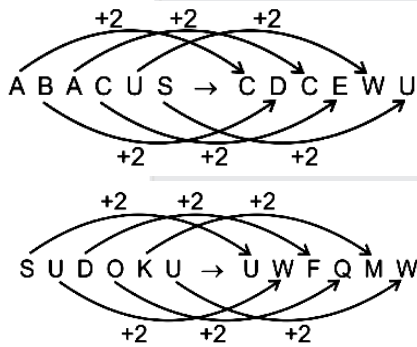
Only Conclusion I follows.

53. In a code language ABACUS is written as CDCEWU then how will you code SUDOKU in the same language?

1. WUFQMW                      2. UWFQMW                      3. FQUWMW                      4. MWFQUW

Ans. (2)

Sol.

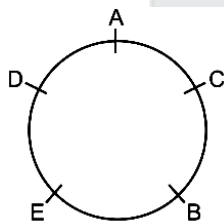


54. Five friends A, B, C, D and E are sitting around a circular table facing the centre. A does not sit next to E. B is sitting to E's immediate right. C does not sit next to D. D has E sitting immediately next to her. Therefore C is sitting immediately between:

1. D and A                      2. D and B                      3. B and A                      4. E and A

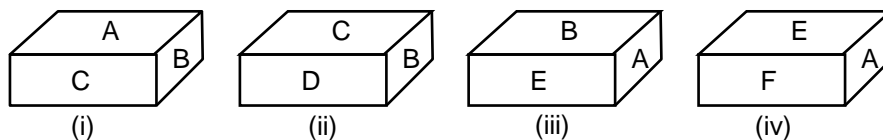
Ans. (3)

Sol.



C is sitting between A and B

55. The following figure shows four positions of a dice. Find out the alphabet which is opposite to face with alphabet



1. F                      2. E                      3. D                      4. A

Ans. (1)

Sol.

B → F  
A → D  
C → E

56. Given below is a question followed by two statements. Which option provides the right condition for answering the question? In which year was Jitan born?  
 I. Jitan is 25 years younger to his mother.  
 II. Jitan's brother was born in 1994 is 35 years younger to his mother.  
 1. I alone is sufficient while II alone is not sufficient.  
 2. II alone is sufficient while I alone is not sufficient.  
 3. Either I or II is sufficient.  
 4. I and II together are sufficient.

Ans. (4)

Sol. (I) is not sufficient alone  
 (II) is not sufficient alone solve the question  
 Both (I) and (II) are give the answer.

57. If 'A – B' means 'A' is the wife of 'B' and if 'A + B' means 'A' is the daughter of 'B' while 'A ÷ B' means 'A' is the son of 'B'. What will be the relation of S with U if 'S + T ÷ U' ?  
 1. Mother                                      2. Sister                                      3. Daughter                                      4. Grand Daughter

Ans. (4)

Sol.

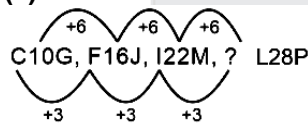


58. Select the option that will correctly replace the question mark (?) in the series:  
 C10G, F16J, I22M, \_?

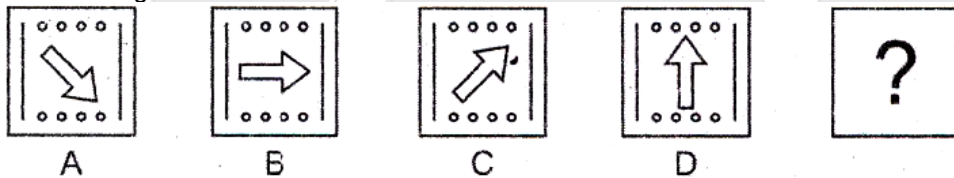
1. P28L                                      2. P26L                                      3. L27P                                      4. L28P

Ans. (4)

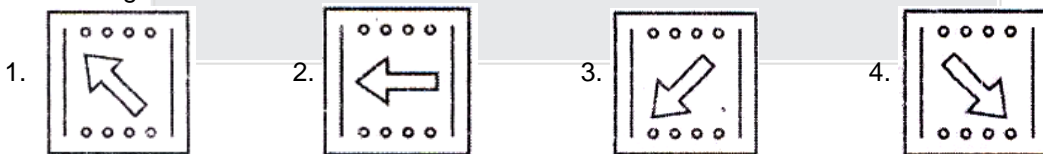
Sol.



59. Find the next figure in the given series:  
 Problem Fig:



Answer Fig:



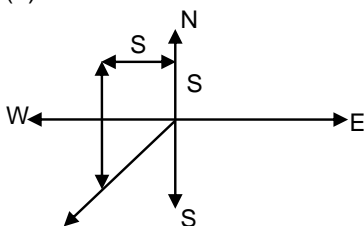
Ans. (1)

Sol. By observation

60. Dhiren walked 5 km towards North. Then he turned left and walked 5 km. Finally, he turns left and walks 10 km. In which direction is he from the starting point?  
 1. North                                      2. North-West                                      3. South                                      4. South-West

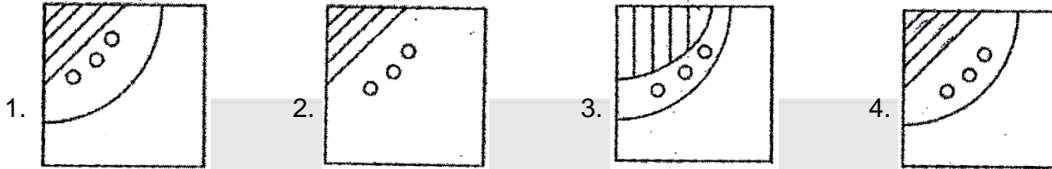
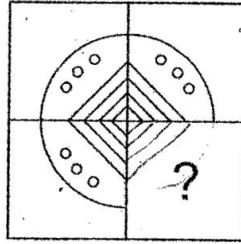
Ans. (4)

Sol.



Direction from home is south west.

61. Which figure takes place of '?' ?



Ans. (4)

62. If 7<sup>th</sup> day of the month is 4 days after Friday, what day will it be on the thirty first day of the month ?  
1. Tuesday                      2. Thursday                      3. Friday                      4. Sunday

Ans. (3)

Sol. 7<sup>th</sup> of the month is Tuesday.  
Hence 31<sup>st</sup> will be Friday.

63. Find the missing number  
31425 to 810  
52346 is to 1024  
45237 is to 1121  
Therefore, 64382 is to ?

1. 1122                      2. 1123                      3. 1315                      4. 1316

Ans. (4)

Sol. 31425 to 810  
3+1+4 2x5 8 10

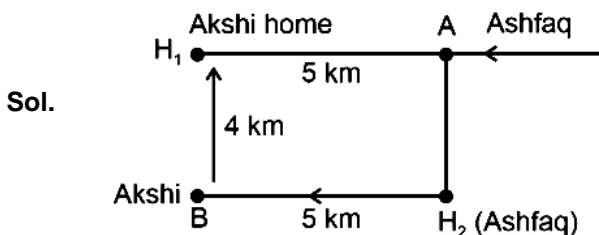
64. Which number will take the position of '?' ?  
1. 4                      2. 3                      3. 2                      4. 1

Ans. (Bonus)

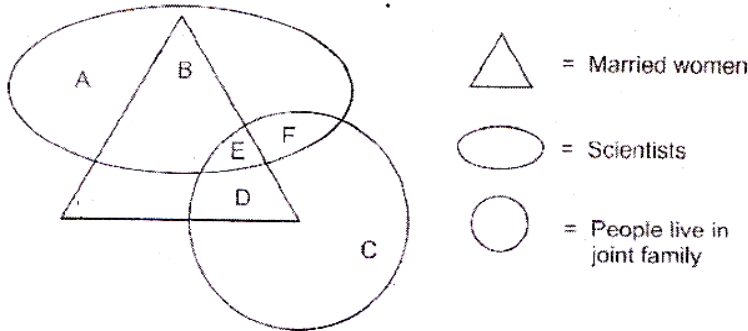
65. Akshi starts her house and goes towards East. After walking 5 km in the same direction she meets her friend Ashfaq who was coming from the opposite direction. Both of them the opposite to the left of Ashfaq and walk together 4 km to reach his house. From there Akshi walks 5 km towards West. Now how much distance she would walk to reach her house ?

1. 4 km towards North                      2. 4 km towards South  
3. 4 km towards West                      4. 4 km towards East

Ans. (1)



66. Study the following and answer the question given below :



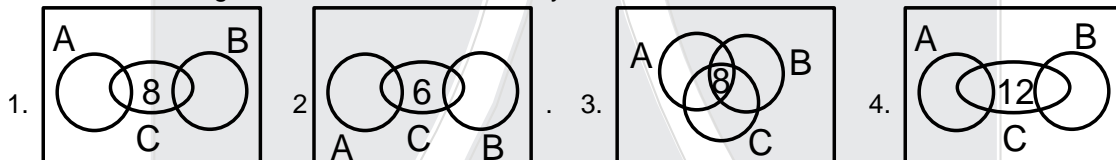
Which letter represents married scientist who do not live in a joint family

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

Ans. (2)

Sol. Letter represents married scientists who do not live in a joint family 'B'.

67. Details of a survey conducted among 200 students of a school on a particular day is follows :  
40% of the students came by bicycle, 50% of the students came by walk and the remaining came by bus. 30% of the students who came by bicycle and 40 of the students who came by walk play cricket. 40% of the students who come by bus do not paly cricket. If we represent students who came by walk as A, students who came by bicycle by B and students who play cricket by C, then choose the diagram which shows the survey result.



Ans. (4)

Sol. Bicycle = 80 (B)                                      Walk = 100 (A)                                      Bus = 20

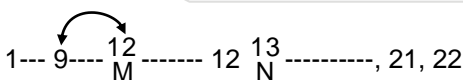
Cricket (C) = (24 + 40) 8 persons are not playing cricket  
Best representation diagram option (4)

68. 21 students were standing in a row. Neethu wants to join among them. Teacher asked Neethu to stand behind madhav who was standing at 10<sup>th</sup> position from back. Looking at the height of the students, teacher interchanged the positions of the students standing 14<sup>th</sup> from back with the student standing at 12<sup>th</sup> from front. Now how many students are standing between Neethu and Madhav ?

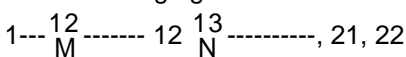
1. 0                                      2. 1                                      3. 2                                      4. 3

Ans. (4)

Sol.

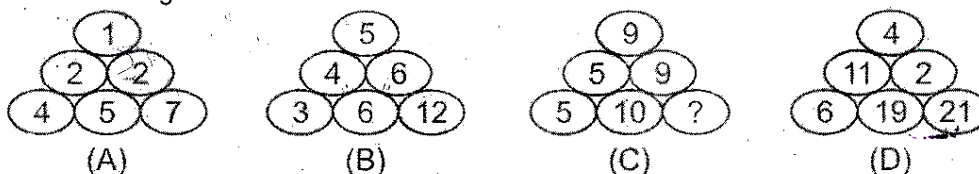


After in changing



So students between madhav and neethu is 3.

69. Find the missing number



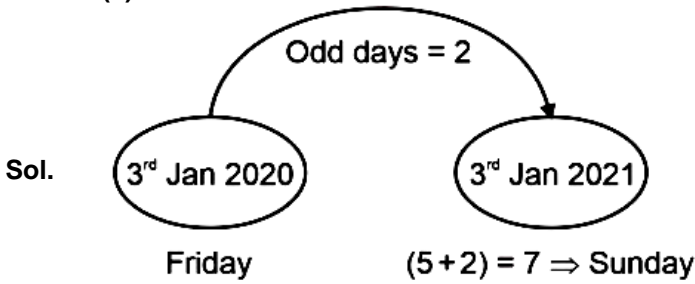
1. 19                                      2. 20                                      3. 7                                      4. 6

Ans. (1)

Sol.  $9 + 5 + 5 = 10 + 9 = 19$

70. In 2020 January 3<sup>rd</sup> is Friday. Then what will be the day 3<sup>rd</sup> in 2021 ?  
 1. Friday                      2. Saturday                      3. Sunday                      4. Tuesday

Ans. (3)



71. Find the values of I, II and III in the given figure ?

□			△	∅	@	*		⊙
⊙		*	⊙	\$		△	#	@
\$	@	△	#		*		III	
#	*	\$	⊙	@	∅	⊙	□	△
⊙	□	@	\$	#	△		⊙	
△	⊙	∅	*		⊙	\$	@	#
	I			⊙	⊙	#	∅	
@	⊙	#	∅	△	\$			□
	\$			II		@		⊙

1. △, \*, ⊙                      2. △, □, ∅                      3. ∅, \*, ⊙                      4. ∅, □, ∅

Ans. (1)

Sol. Distinct symbol in each row and column.

**Direction (Question 72)**

In the coded language the 12 digits of the clock are represented as 12 symbols as follows :

\$, AN, #, AT, \*, IN -, IT, +, IF, △, AF

When any two symbols used together, then first symbols represent hour hand and second symbols minute hand of the clock.

72. The teacher starts his lecture at 'IT #' and teaches for 'AN \*'. Then he announced break for '\$ IN' hrs and resumed the class. At what time he restarted his lecture ?

1. △ IF                      2. AFAN                      3. △AF                      4. IF\$

Ans. (2)





76. In certain code language,  
POPULAR is coded as [323628230]  
VOCALIST is coded as [251615103129]  
then TEACHER will be coded in the language ?  
1. [1928983030]      2. [9186821015]      3. [2189826]      4. [2983160]

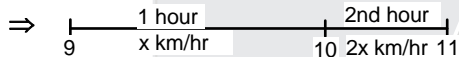
**Ans. (3)**

**Sol.** POPULAR  
 $\Rightarrow 32 \quad 36 \quad 28 \quad 22 \quad 30$   
 $\Rightarrow P + P = 16 + 16 = 32$   
 $\Rightarrow O + U = 15 + 21 = 36$   
 $\Rightarrow U + A = 21 + 1 = 22$   
 $\Rightarrow L + R = 12 + 18 = 30$   
 $\Rightarrow$  Sum of Alternate alphabets

77. After noting down the odometer reading, that showed smallest four digit square number, Rimzim started driving to school with constant speed at 9 A.M. After one hour, he observed the delay in reaching school and doubled the speed to reach at 11 A. M. In the school parking, he again noticed odometer which showed the number that reads same from both sides. What was the speed of Rimzim at 9.50 A.M. ? (round to one decimal place)

1. 55.5 km/hr      2. 60.5 km/hr      3. 65.7 km/hr      4. 68.6 km/hr

**Ans. (3)**

**Sol.** Smallest four digit square no = 1024  
 $\Rightarrow a = 1 \quad 1 \ 2 \ 2 \ 1$   
 $\Rightarrow$  Difference =  $1221 - 1024 = 197$   
 $\Rightarrow$    
 $\Rightarrow 197 \text{ km} = 65.7 \text{ km/hr}$

78. At a crossing there was a direction pole which was showing all the 8 correct directions. An engineer wrote the mathematical operators i.e. +, -, x, ÷ and = at NE, SE, E NW and W respectively. But due to heavy wind, direction pole rotated by 180°. Without noticing the new orientation of pole, he rotated the operated the operators by 45° clock-wise. What will be the sequence of directions in the given equation ?

[33 ? 11 ? 3 ? 6 ? 115]

1. W, SE, NW, E      2. SE, N, S, NW      3. NW, S, N, SE      4. NW, N, S, SE

**Ans. (4)**

**Sol.** 

79. If,  
 '+' implies 'go'  
 '-' implies 'to'  
 'x' implies 'walk'  
 '=' implies 'early'  
 '<' implies 'before'  
 '>' implies 'Sun'  
 '÷' implies 'rise'  
 then, identify the correct expression  
 1. [5 go 4 to 3 walk 4 early 10 before 2 sun 3 rise 2 before 3 sun 4 rise 7 early 1]  
 2. [5 before 4 Sun 3 rise 4 go 10 to 2 walk 3 early 2 go 3 Sun 4 rise 7 walk 1]  
 3. [5 to 4 walk 3 rise 4 before 10 Sun 2 go 3 early 2 to 3 walk 4 rise 7 walk 1]  
 4. [5 to 4 walk 3 before 4 go 10 rise 2 early 3 walk 2 go 3 Sun 4 rise 7 walk 1]

**Ans. (4)**

**Sol.** For option 4.  
 $\Rightarrow 5 - 4 \times 3 < 4 + 10 \div 2 = 3 \times 2 + 3 > 4 \div 7 \times 1$   
 $\Rightarrow -7 < 9 = 9 > \frac{4}{7}$   
 Correct

**Direction (Question 80) :** The seven students named as Pika, Piku, Moa, Moi, Mau, Ina and Inu are doing class test around a round table by not facing each-other. The teacher shifted the Moa, Moi, Pika, Piku, Ina and Inu at equal distance. After that arrangement, Piku is sitting two place left of Ina who is sitting one place left of Moi. Moa makes an angle of  $90^\circ$  from Mou and at angle of  $120^\circ$  from Pika. Inu is sitting opposite to Pika.

**80.** What is the shortest angle between Moi and Mou?  
 (1)  $51.43^\circ$  (2)  $81.43^\circ$  (3)  $150^\circ$  (4)  $90^\circ$

**Ans. (1)**

**Direction (Question 81) :**

In the following question, the symbols are used with the following meaning as illustrated below.

- $\Delta \wedge O$  means ' $\Delta$ ' is not greater than ' $O$ '
- $\Delta * O$  means ' $\Delta$ ' is neither greater than nor smaller than ' $O$ '.
- $\Delta \# O$  means ' $\Delta$ ' is not smaller than ' $O$ '
- $\Delta \Pi O$  means ' $\Delta$ ' is neither smaller then equal to ' $O$ '
- $\Delta \square O$  means ' $\Delta$ ' is neither neither greater then nor equal to ' $O$ '

**81.** Assuming the statements to be true, find which of the four conclusions given below are definitely true.

Statements : (A)  $\leftarrow \wedge \infty$  (B)  $\% \Pi \$$  (C)  $\$ \# \downarrow$  (D)  $\leftarrow \Pi \$$

Conclusion : (I)  $\infty \square \$$  (II)  $\$ * \downarrow$  (III)  $\leftarrow \Pi \downarrow$

- 1. Only II is true
- 2. Only III is true
- 3. Only II and III are true
- 4. Only I and III are true

**Ans. (2)**

**Sol.**  $\Delta \wedge O \longrightarrow \Delta \leq O$   
 $\Delta * O \longrightarrow \Delta = O$   
 $\Delta \# O \longrightarrow \Delta \geq O$   
 $\Delta \Pi O \longrightarrow \Delta > O$   
 $\Delta \square O \longrightarrow \Delta < O$

Statements

- (A)  $\leftarrow \leq \infty$
- (B)  $\% > \$$
- (C)  $\$ \geq \downarrow$
- (D)  $\leftarrow > \$$

Conclusion

- I.  $\Rightarrow \infty < \$$
- II.  $\Rightarrow \$ = \downarrow$
- III.  $\Rightarrow \leftarrow > \$$

By (C) and (D) Statements

**82.** A defective watch showed the weird behaviour. It gains 5 seconds per 3 minutes for first hour, loss 10 seconds per 3 minutes in the second hour, again gains 15 seconds per 3 minutes for next one hour and so on. The watch showed the correct time at 7: 00 A.M. What time it indicated at 7:00 P.M.?

- (1) 6:50 P.M. (2) 7:00 P.M. (3) 7:10 P.M. (4) 7 :20 P.M.

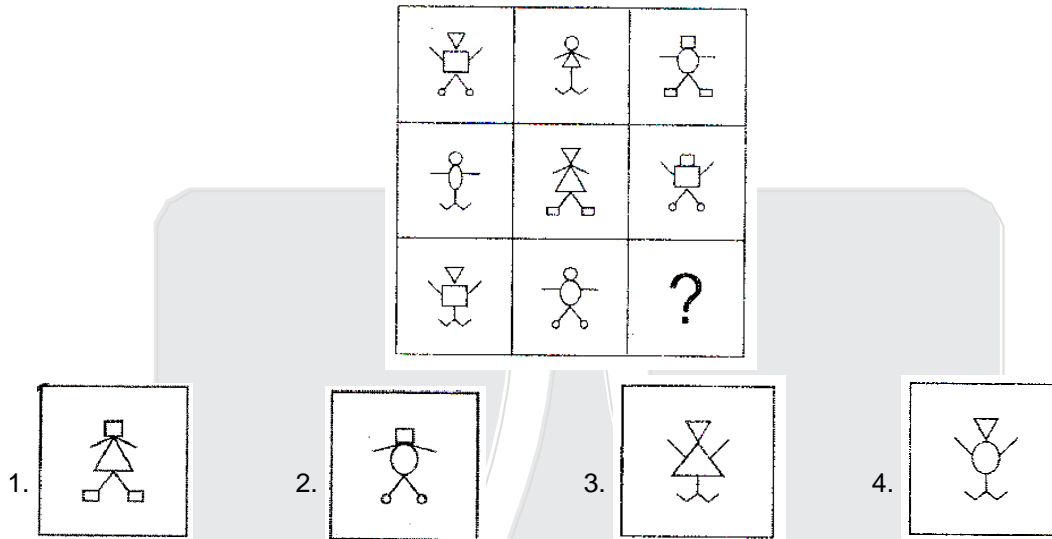
**Ans. (1)**

**Sol.** For 12 hours

$\Rightarrow$  for 1 hour gain of  $5 \times 20 = 10$  seconds.  
 for 2 hour loss of  $10 \times 20 = 200$  seconds.  
 for 3 hour gain of  $15 \times 20 = 300$  seconds.  
 $\Rightarrow 100 - 200 + 300 - 400 + 500 \dots \dots \dots - 1300$

- ⇒  $(-100) \times 6 = -600$  seconds
- over all loss of 600 seconds of 12 hours
- ⇒  $(7:00) - (600 \text{ seconds})$
- ⇒  $7:00 - 10 \text{ mins}$
- ⇒  $6 : 50 \text{ P.M.}$

83. Select a suitable figure from the four alternatives that would complete the figure matrix:



Ans. (1)

Sol. According to Row 1 & 2  
Every Row contain same types of symbols. In Row 3, rectangle and circle is there  
So,  $\Delta$  comes  
⇒ Option 2 and 4 rejected  
⇒ In Row 3, If we look into feet.  
Then only option 1. is correct

84. How many pairs of letter are there in the word ' Radioimmunoelctrophoresis', which have as many letters between them as in the English alphabet series?

- 1. 10
- 2. 14
- 3. 16
- 4. 18

Ans. (2)

85. Read the statements carefully and give the answer.

Statements :

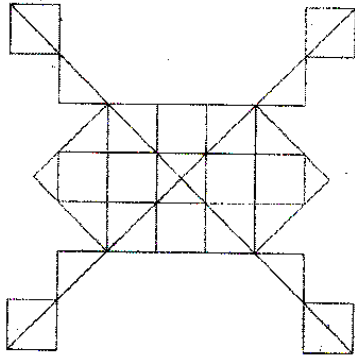
- I. Tues is the wife of Wednes. Tues and Satur & only children of Fri. Thur is oly daughter of Wednes. Mon is the grand-daughter of Fri.
- II. Thur is married to Sun. Tues is mother-in-law of sun. Tues is the only daughter of Fri. Mon is the grand-daughter of Fri.

How is Mon related to Tues?

- 1. If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- 2. If the data in statement II alone are sufficient, while the data in statement I are not sufficient to answer the question.
- 3. If the data either in statement I alone or statement II alone are sufficient to answer the question.
- 4. If the data in both statements I and II together are necessary to answer the question.

Ans. (1)

86. Find out the number of triangles and squares in given figure :



1. 44, 20

2. 44, 22

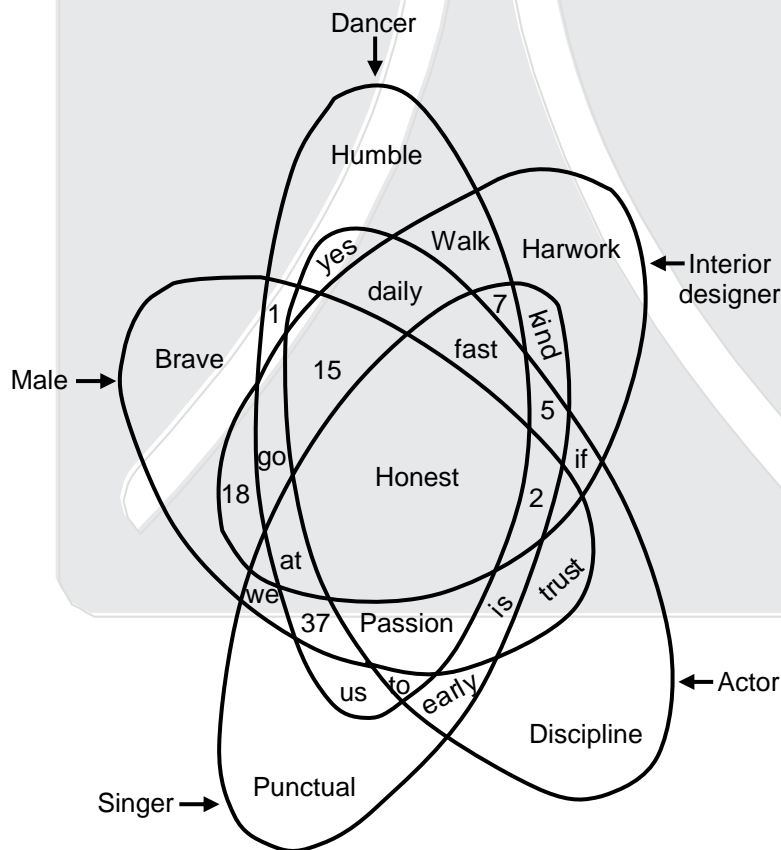
3. 46, 20

4. 48,22

Ans. (Bonus)

Sol. There are 56 triangles and 22 Squares

87. Female singer are represented in the figure as :



1. Fast Punctual Early us 5 kind to 7

2. Punctual Early is 2 kind 5 fast 7

3. 7 Fast Kind 5 trust early us to 2 is

4. We 6 at honest punctual fast 37 us to is

Ans. (1)

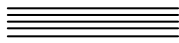
Sol. Fast punctual early us 5 kind to 7 lies outside the male circle and in side singer











100. If  $13 \rightarrow 5$ ,  $17 \rightarrow 5$ ,  $29 \rightarrow 7$ ,  $41 \rightarrow 11$  then  $73 \rightarrow ?$

1. 11

2. 13

3. 15

4. 17

Ans. (1)

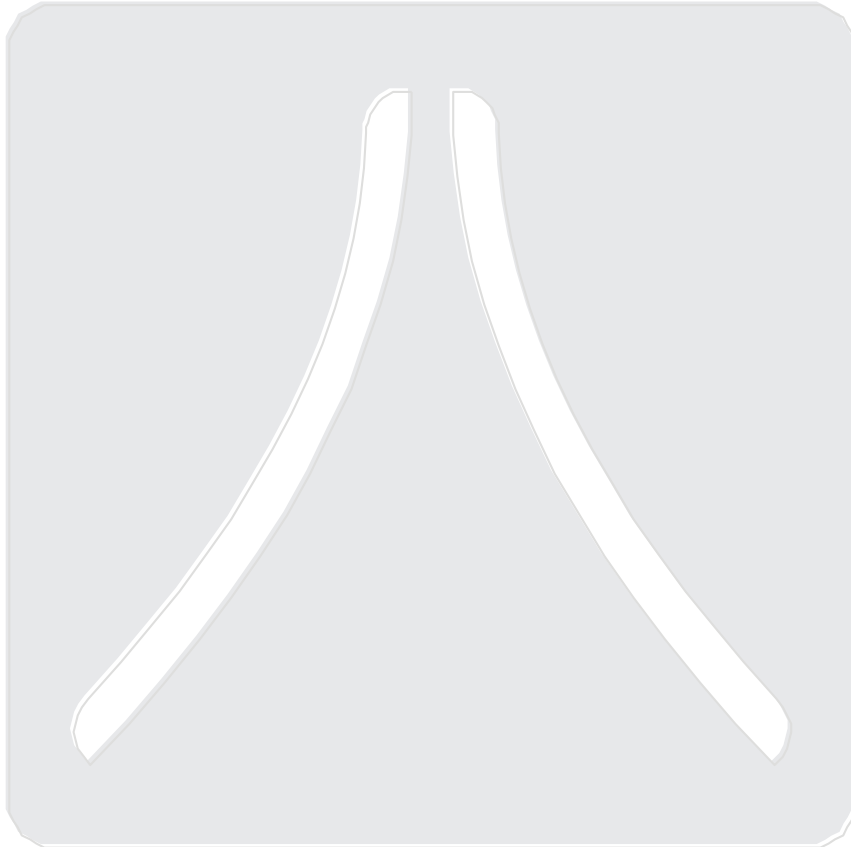
Ans. (1)

$$\frac{13}{2^2 + 3^2} \rightarrow \frac{5}{2 + 3}$$

$$\frac{17}{1^2 + 4^2} \rightarrow \frac{5}{1 + 4}$$

$$\frac{41}{3^2 + 4^2 + 4^2} \rightarrow \frac{11}{3 + 4 + 4}$$

$$\frac{73}{3^2 + 8^2} \rightarrow \frac{11}{3 + 8}$$



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