SNAP 2022 : Mock Test 1

Mock Test Questions & Solutions

Mock Test Solutions in English

Questions

1. **Direction:** Identify the segment that contains the grammatical error, and mark the correct answer accordingly.

    Since the exam went online, the number of applicants for CAT has risen by as many as 50%.

    A. since the exam went online
    B. the number of applicants

    C. by as many as 50%
    D. for CAT has risen

2. No source of energy is as economical as solar energy in times of coal crisis.

    A. No source of energy is so economical
    B. as solar energy

    C. in times of coal crisis
    D. No error

3. The announce of Twitter being purchased by Elon Musk became the talk of the town.

    A. The announcement of Twitter
    B. being purchased by Elon Musk

    C. became the hot-cake
    D. No error

4. **Direction:** Fill in the blanks with the most appropriate word from the given options.

    Both Mr. and Mrs. Kapadia go for a _____ walk just before dinner.

    A. lively
    B. brisk

    C. bubbly
    D. leisurely

5. Riddhi finally agreed _____ her riddles with us.

    A. share
    B. to share

    C. sharing
    D. shared

6. Charu was born _____ August 4 at 8 o'clock in the morning.

    A. in
    B. on

    C. during
    D. after

7. Which one of the following is not a compound word?

    A. Pancake
    B. Overboard

    C. Panting
    D. Overflow

8. **Direction:** Some proverbs/idioms are given below, along with their meanings. Choose the correct meaning of the proverb/idiom.

A fool's errand

A. A stupid statement

B. A pointless endeavour

C. An honest answer

D. A badly done task

9. On the razor's edge

A. An uncertain situation

B. A clear picture

C. A sharp analysis

D. Sarcastic remarks

10. **Direction:** Choose a word from the given options to complete the sentence meaningfully.

A storm in a _____ means great excitement over a trivial matter.

A. fist

B. glove

C. kettle

D. teacup

11. **Direction:** Pick out the most appropriate synonym of the given word from the given answer options.

Purport

A. Manoeuvre

B. Imply

C. Classify

D. Pretend

12. Which of the following sentences is in present continuous tense?

A. He was asked to do a lot of work.

B. He was doing a lot of work.

C. He used to do a lot of work.

D. He is doing a lot of work.

13. **Direction:** Identify the option that changes the voice of the given sentences correctly.

They have decided to change the curriculum this year.

A. It is decided to change the curriculum this year.

B. It has been decided to change the curriculum this year.

C. The curriculum will be changed this year.

D. The decision is to change the curriculum this year.

14. **Direction:** As which part of speech is the word 'yellow' used in the excerpt given below?

Two roads diverged in a yellow wood,

And sorry I could not travel both

A. Adverb   B. Adjective

C. Noun   D. Verb

15. **Direction:** As which part of speech is the word 'farmhouse' used in the excerpt below?

My little horse must think it queer

To stop without a farmhouse near

A. Adverb   B. Adjective

C. Noun   D. Verb

16. What should come in the place of the question mark (?) in the following series?

660, 330, 336, 168, ?, 87

A. 172   B. 174

C. 92   D. 90

17. If 'GOAT' is coded as '2167' in a language and 'EDGE' is coded as '5745', then what is the code for 'ACID'?

A. 4913   B. 4931

C. 1349   D. 1394

18. Sunil remembers that his friend Rohan's birthday is after 10 December but before 14 December, whereas another common friend Paul remembers that Rohan's birthday is after 11 December but before 16 December. Another common friend Nakul remembers that Rohan's birthday is after 12 December but before 18 December. On which date in December is Rohan's birthday?

A. 11 December   B. 12 December

C. 13 December   D. None of the above

19. **Direction:** Some information is provided in the paragraph below. Answer the questions based on this information.

A number arrangement machine, when given a particular input, rearranges it using a particular rule as shown below.

Input: 2537, 2764, 5364, 5273, 4931

Step I: 2357, 2467, 4635, 2357, 4139

Step II: 8, 10, 9, 8, 4

Step III: 64, 100, 81, 64, 16

Step IV: 10, 1, 9, 10,7

Step V: 1, 7, 9, 10, 10

Step V is the last step or the final output of the above input. As per the rules followed in the given steps, find out the steps for the given input.

Input: 3526, 3478, 4235, 5341, 5263

What will be the last number of step V?

A. 4   B. 7

C. 9   D. 13

20. A is the father of B . B is the father of C. D is the sister of C . E is the only son-in-law of B, and B has only two children, one of which is married. How is D related to E?

 A. Sister   B. Mother

 C. Wife   D. Sister-in-law

21. Direction: A statement is followed by 2 assumptions. Read the statements and identify the assumptions that are implicit in them. Mark according to the given code.

 Statement: Advertisement in a newspaper: Subscribe to our newspaper and give your child the gift of knowledge

 Assumption I : Newspapers impart knowledge.

 Assumption II: Children read the newspapers that their parents subscribe to.

 A. Only Assumption I is implicit.   B. Only assumption II is implicit.

 C. Both I and II are implicit.   D. Neither is implicit.

22. Statement: Work from the office is mandatory for all employees from April 1 (email sent to all employees of an IT company).

 Assumption I: The workers are unlikely to read the notice.

Assumption II: When employees come to work and work from the office is beneficial for the company.

A. Only Assumption I is implicit.   B. Only assumption II is implicit.

C. Both I and II are implicit.   D. Neither is implicit.

23. A clock starts ticking at noon. By 15 minutes past 4, how many degrees has the hour hand turned?

A. 122^0 B. 122.5^0

C. 127^0 D. 127.5^0

24. A series is given with one missing term. Select the correct alternative from the given ones that will complete the series.

ABC, CDG, EFK, GHO, ?

A. IJR   B. JKR

C. IJS   D. JKS

25. Which number will replace the question mark?

A. 4   B. 5
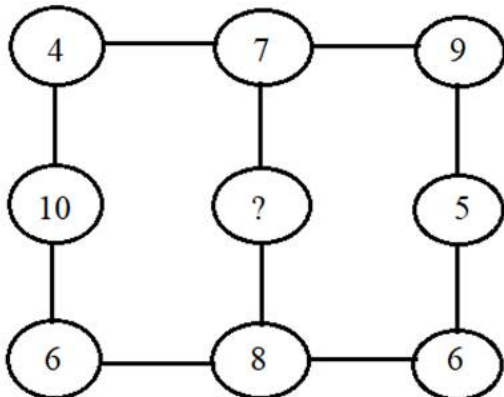
C. 6   D. 7

26. Direction: A statement is followed by two courses of actions, I and II. Consider the statement to be true, and mark the most appropriate option as the answer.

Statement:

A gang of thieves have broken the wall and escaped the highly secured police station.

Course of action:

I. The police must go after them and capture them at all costs.

II. The police must handle the media and stop this news from spreading elsewhere.

A. Only I follows.   B. Only II follows.

C. Both I and II follow.   D. None follows.

27. **Statement:**

Toddlers and babies often pick up habits from the people around them without even realising that these habits might not always be suited to them.

Course of action:

I. We should behave appropriately in front of children.

II. Children's minds should not be subjected to our culture.

A. Only I follows.   B. Only II follows.

C. Both follow.   D. None follows.

28. 'P – Q' means 'P is the father of Q'.

'P × Q' means 'P is the sister of Q'.
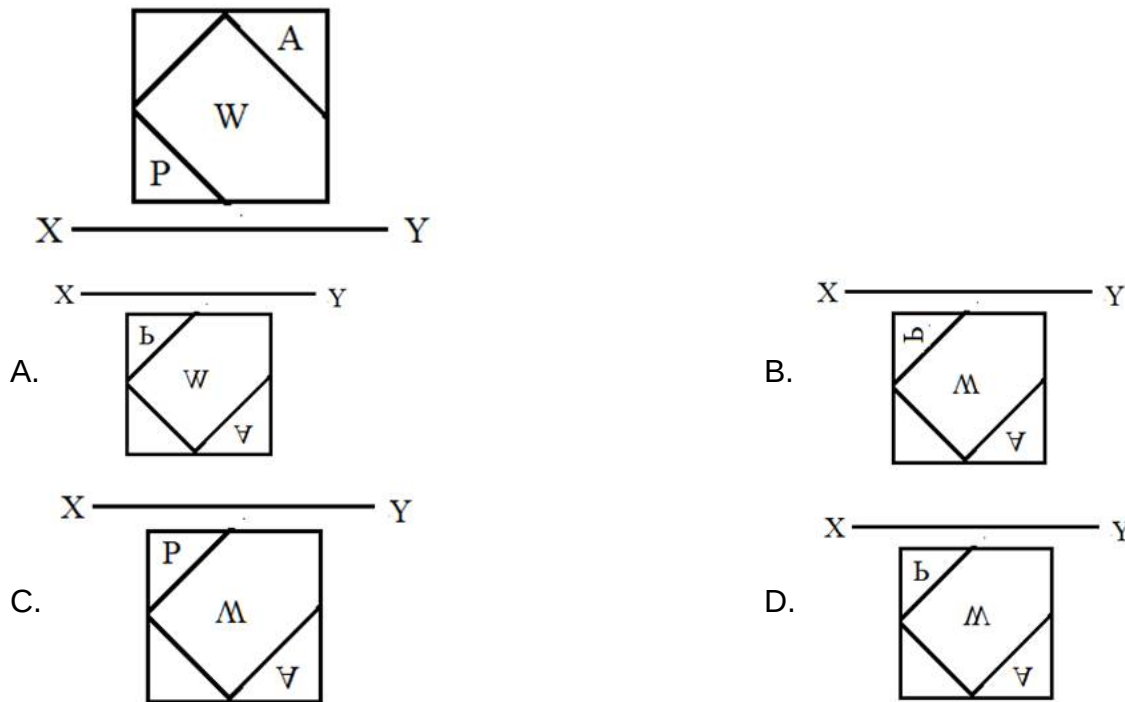
'P + Q' means 'P is the brother of Q'.

'P ÷ Q' means 'P is the husband of Q'.

If A × B – C + E ÷ G, then how is B related to G?

A. Mother-in-law   B. Mother

C. Father-in-law   D. Father

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

30. Direction: The following question consists of two words that are related in a certain manner. They are followed by four pairs of related words. Select the pair that has the same relationship as the pair in the question.

    Lion : Leonine ::

    A. Cat : Canine
    B. Dog : Feline
    C. Cow: Bovine
    D. Pig: Ursine

31. Eight friends P, Q, R, S, T, U, V, and W are seated in a circle (not necessarily in the same order). U is between Q and R. S is opposite of Q and second to the left of V. P and T are not seated opposite to each other, but P is second to the right of U. Who is seated just opposite of T?
    A. R
    B. U
    C. P
    D. None of the above

32. What should come in the place of the question mark (?) in the following series?
    5, 7, 35, 9, 11, ?, 13, 15, 195
    A. 77
    B. 88
    C. 99
    D. None of the above

33. A series is given with one missing term. Select the correct alternative from the given ones that will

complete the series.

MDD, PFF, SHH, ?, YLL

A. UII   B. UJJ

C. VII   D. VJJ

34. In a school, 60 students are in the canteen. 25 of them had coffee and 20 of them had tea. 5 of them had both coffee and tea. How many students did not have coffee or tea?

A. 15   B. 20

C. 25   D. 30

35. In a certain code language, 'LOTUS' is written as 'OLGFH'. How will 'MONK' be written in that language?

A. LKNP   B. GHIJ

C. NLMP   D. None of the above

36. Direction: In the question below, two statements, I and II, are given. Find out the relationship between the two statements in terms of cause and effect, and pick the correct Answer according to the options given below.

Statements:

I: Many seats in one of the popular colleges are vacant this year.

II: The majority of students who sought admission to this college could not score the qualifying marks.

A. Statement II is the effect, and statement I is the cause.

B. Statement II is the cause, and statement I is the effect.

C. Both the statements are effects of independent causes.

D. Both the statements are effects of some common cause.

37. **Statements:**

I: Most of the manufacturing companies are shutting down in India, which is leading to increasing unemployment in the country.

II: Demand for jute products is diminishing day by day, which is affecting the production of jute products in turn.

A. Statement II is the effect, and statement I is the cause.

B. Statement I is the cause, and statement II is the effect.

C. Both the statements are effects of independent causes.

D. None of the above is true.

38. **Statements:**

I: Drought-like conditions have prevailed for several years in the Vidarbha region.

II: A large number of trees have been felled in the Vidarbha region over several years.

A. Statement II is the effect, and statement I is the cause.

B. Statement II is the cause, and statement I is the effect.

C. Both the statements are effects of independent causes.

D. Both the statements are effects of some common cause.

39. What should come in the place of the question mark (?) in the following series?

22, 18, 25, 15, 28, ?

A. 20

B. 16

C. 14

D. 12

40. Riya is the only daughter of Satya. Satya is the father-in-law of Dipak and Dipak is the father of Rajesh. Sonal is the sister of Rajesh. How is Satya related to Sonal?

A. Paternal grandfather

B. Maternal grandfather

C. Father

D. Uncle

41. Shankar took a loan of Rs. 40000 from his friend Chetan at a certain rate of simple interest. Shankar used this amount for five months and then lent it to Raghav at 18% simple interest per annum.If the total interest paid by Shankar at the end of the year is equal to the total interest received by him from Raghav, then find the rate of interest at which Shankar took the loan.

A. 10%

B. 10.5%

C. 11%

D. 11.5%

42. A table is given below. The numbers given in the table follow a certain pattern. Which of the following can replace '?' in the table?

12	30	56
20	42	72
2	12	?
110	156	210

A. 20   B. 30

C. 24   D. 96

43. The length of a rectangular field is 2.5 times that of its breadth. If the area of the field is 250 sq m, then what is the cost (in Rs.) of fencing the field at Rs. 10 per metre?

A. 700   B. 725

C. 750   D. 775

44. How many regular polygons are there whose number of diagonals are greater than 35 and less than 65?

A. 0   B. 1

C. 2   D. 3

45. The probability that Visha can hit a target is $\frac{1}{5}$. If he fires 4 shots, then what is the probability that at least one shot hits the target.

A. $\frac{396}{625}$ B. $\frac{256}{625}$

C. $\frac{369}{625}$ D. $\frac{326}{625}$

46. If $f(x^2 - 8x + 20) = 5x^2 - 3x + 12$, then find f(4).

A. 40   B. 50

C. 60   D. 80

47.   After offering two successive discounts of 12% and 20%, a shopkeeper incurred a loss of 12%. If the shopkeeper offered two successive discounts of 5% and 6%, then what would his approximate profit/loss percentage be?

A. 11.5% loss   B. 11.5% profit

C. 14% loss   D. 14% profit

48. The average runs scored by Kohli increases by 2 when one of his matches in which he scored 24 runs is excluded. If Kohli has played a total of 10 matches, then find the original average runs scored by him.

A. 48   B. 42

C. 36   D. 40

49.   p, q, and r are three consecutive multiples of 24 . If eighteen times 'p' is equal to the sum of twice of 'r' and six times of 'q', then which of the following is true?

A. 7p = 3q + r   B. 12p = 9q − r

C. 14p = 10q − 2r   D. 26p = 9q + 2r

50.   Anisha, Manisha, and Sunaina have 110 marbles in total. Anisha has 3 times the number of marbles that Manisha has, and Manisha has 2.5 times the number of marbles that Sunaina has. Find the number of marbles with Manisha.

A. 75   B. 55

C. 45   D. 25

51.   Nitin was facing north. He turned right and walked 200 m. He then turned left and walked 300 m. Finally, he turned left and walked for 600 m. What is the minimum distance between the final and initial positions of Nitin?

A. 700 metres   B. 500 metres

C. 600 metres   D. 400 metres

52.   Find the missing terms in the following series:

28, 46, 100, 262, ?, 2206

A. 696   B. 748

C. 576   D. 480

53.   If $\log_8(2 + \log_9(\log_9(x − 15) − 2)) = \frac{1}{3}$, find the value of x.

A. 714   B. 734

C. 754   D. 744

54.   Team A, which consists of 8 men and 4 boys, can complete a task in 12 days. Team B, which consists of 9 men and 6 boys, can complete the same task in 10 days. Find the time taken by Team A and Team B together to complete the same work.

A. $6\frac{5}{11}$ days   B. $4\frac{5}{11}$ days

C. $4\frac{6}{11}$ days   D. $5\frac{5}{11}$ days

55.   A group of 7 members that includes Asha and Nisha is seated around a round table. What is the probability that Asha and Nisha will always sit together?

A. $\frac{1}{5}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$

56. In a public place, two bells are installed. One bell rings after every 8 minutes, while the other bell rings after every 270 seconds. If the two bells ring together at 10:00 a.m., what would be the next time at which they would ring together?

A. 11:12 a.m.

B. 10:12 a.m.

C. 10:36 a.m.

D. 11:00 a.m.

57. The distance between cities A and B is 288 km. A person travelled from City A to City B at a speed of x km/h and travelled from City B to City A at a speed that is 12 km/h less than the value of x. If he took 4 hours more while travelling from City B to City A, then find the value of x.

A. 24

B. 36

C. 48

D. 54

58. Which of the following options will replace '?' in the series given below?

898, 386, 337, 121, 96, 32, ?

A. 24

B. 23

C. 19

D. 16

59. Five years ago, Rashmi's age was five times the age of Ravi. Four years from now, Ravi's age will be half of Rashmi's age. Find the sum of the present ages of Rashmi and Ravi.

A. 25 years

B. 26 years

C. 27 years

D. 28 years

60. **Directions:** Study the following information carefully to answer the given questions.

The following bar graph represents the sales (number of cars) for five years of two types of cars, 'X' and 'Y', launched by an Indian company in 2015.
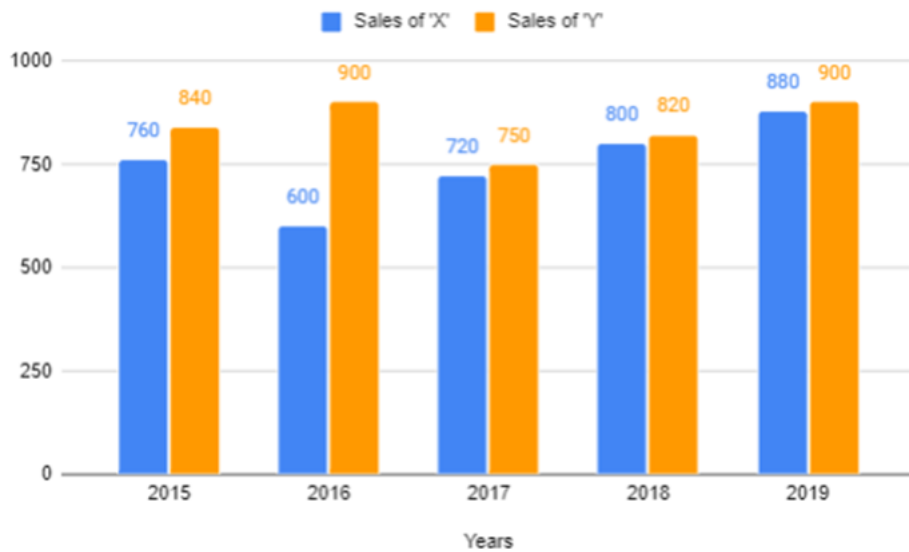
For how many of the given years was the sale of cars X and Y combined less than that of the previous year?

A. 1   B. 2

C. 3   D. 4

<u>Solutions</u>

1.　　C

Sol.

According to grammar rules, we use 'as many as' for countable nouns and 'as much as' for uncountable nouns. Here, '50%' does not give a countable number. Thus, 'many' needs to be replaced with 'much'.

2.　　A

Sol.

While framing a sentence in positive degree or to use a positive degree of adjective in a sentence, the correct determiners that should be used are 'very few' and 'no other'. Here, 'No other source of energy' should be used to make the sentence correct.

3.　　A

Sol.

Here, the word 'announce' should be replaced by 'announcement' because the sentence requires a subject; for that, we need to use the verb 'announcement' instead of the noun 'announce'. Hence, option A is the right answer.

4.　　B

Sol.　We use the adjective 'brisk' with 'walk'.

Hence, option B is the correct answer.

5.　　B

Sol.

We use the infinitive to show intention after a verb that involves saying something. Verbs such as 'agree', 'promise', and 'decide' can all use the infinitive form. Hence, option B is the correct answer.

6.　　B

Sol.

The preposition 'on' is used before days, dates, or specific holidays. Hence, option B is the

correct answer.

7. C

Sol. A, B, and D are words made of two words that are grouped together and are, therefore, compound words. C is a single word and is, therefore, the answer.

8. B

Sol.

A fool's errand means a futile undertaking or a task that has very little chance of being successful.

Hence, option B is the correct answer.

9. A

Sol.

To be on the razor's edge means to be in a dangerous and precarious situation.

Hence, option A is the correct answer.

10. D

Sol. A storm in a teacup means a situation in which people are upset about something that is not important.

11. D

Sol.

Purport: Appear to be or do something, especially falsely

So, the correct answer is option D.

12. D

Sol.

This is perhaps one of the easiest questions. The syntax for the present continuous tense is as follows:

Subject + 'is/are' + Verb(ing) + Object

Hence, option D is the correct answer here.

13. B

Sol. 'They have decided' becomes 'It has been decided' in the passive form.

14. B

Sol. 'Yellow' is used as an adjective because 'yellow' is describing the noun 'wood'.

15. C

Sol. 'Farmhouse' is a noun as it is the name of a place.

16. B

Sol. This is an alternating division and addition series. First, divide it by 2 and then add 6; therefore, 174 will come in the place of the question mark (?).

17. B

Sol. G(7), O(15 = 1 + 5 = 6), A(1), T(20 = 2 + 0 = 2) is written in the reverse order as 2167 and E (5), D(4), G(7), E(5) is written in the reverse order as 5745.

So, the code for ACID will be A(1), C(3), I(9), D(4): 4931

Hence, option B is correct.

18. C

Sol. According to Sunil, Rohan's birthday can be on 11, 12, or 13 in December.

According to Paul, Rohan's birthday can be on 12, 13, 14, or 15 in December.

According to Nakul, Rohan's birthday can be on 13, 14, 15, 16, or 17 in December.

Common date: 13 December

So, Rohan's birthday is on 13 December. Hence, option C is correct.

19. D

Sol. Step I: In this step, all even digits are arranged in ascending order from left to right and then all odd digits are arranged in ascending order from left to right.

Step II: In this step, we take the sum of the middle two digits of numbers in step I.

Step III: In this step, we take the square of the numbers in step II.

Step IV: In this step, we take the sum of all the digits in step III.

Step V: In this step, all numbers are arranged in ascending order from left to right from step IV.

Input: 3526, 3478, 4235, 5341, 5263

Step I: 2635, 4837, 2435, 4135, 2635

Step II: 9, 11, 7, 4, 9

Step III: 81, 121, 49, 16, 81

Step IV: 9, 4, 13, 7, 9

Step V: 4, 7, 9, 9, 13

Clearly, 13 will come in step V. Hence, option D is correct.

20. C

Sol. According to the given information, we can draw the following family diagram:
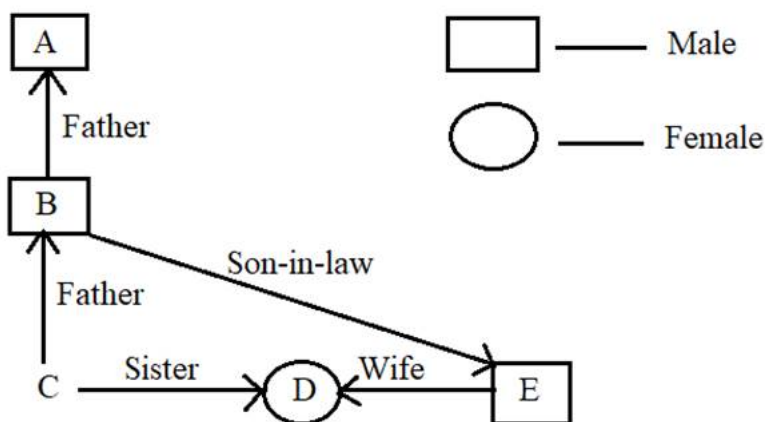
Thus, D is the wife of E. Hence, option C is correct.

21. C

Sol. Since the newspaper says that parents will give their children the gift of knowledge by subscribing to the newspaper, it is assumed that newspapers impart knowledge.

Since the statement says that a subscription of their newspaper is a gift of knowledge for any child, it is assumed that children read newspapers.

Hence, C is the correct answer.

22. B

Sol. A is not implicit as it is assumed that people will read an email whenever it is sent with an important notification.

B is implicit as companies take actions that are in the interest of the company.

Hence, B is the correct answer.

23. D

Sol. We know that angle traced by hour hand in 12 hours = 360⁰

So, angle traced in 1 hours = $\frac{360}{12}$ = 30⁰

Time duration from noon to 15 minutes past 4 = 4 hours 15 minutes = 4 + $\frac{15}{60}$ = $\frac{17}{4}$ hours

Angle made by hour hand in $\frac{17}{4}$ hours = $\frac{360}{12}$ × $\frac{17}{4}$ = 127.5⁰

Hence, option D is correct.

24. C

Sol. In this series, the first pair of letters increases continuously, i.e., AB, CD, EF,… The third letter is the sum of the positional values of the first pair of letters like A = 1, B = 2 as 1 + 2 = 3 = C, and so on. Hence, option C is correct.

25. B

Sol. The numbers in each row and column add up to 20, so 5 will replace the question mark.

Hence, option B is correct.

26. A

Sol. Here, only I follows. Since the gang managed to escape a highly secure facility, they should be caught at all costs before they commit another crime. Hence, I follows. But II does not follow because stopping the news from spreading is akin to police covering their own negligence. Hence, option A is the correct answer.

27. A

Sol. Since toddlers and babies have a penchant for picking up habits from people around us, we should use it as an advantage of inculcating good habits by behaving in front of them in the same way that we want them to emulate. Hence, I follows.
However, II does not follow because we can't say that our culture can have a negative influence on our babies. Hence, option A is the correct answer.

28. C

Sol. According to the given information, we can draw the following family diagram:
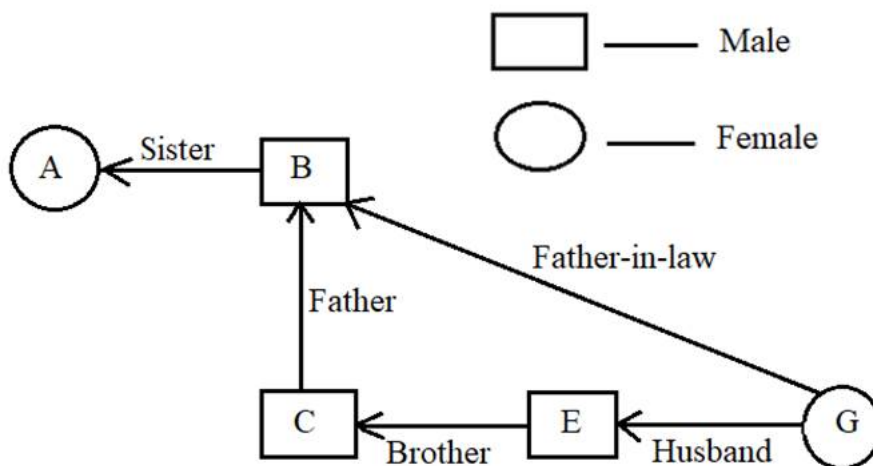
Thus, B is the father-in-law of G. Hence, option C is correct.

29. D

Sol. The correct mirror image of the question figure is option D.
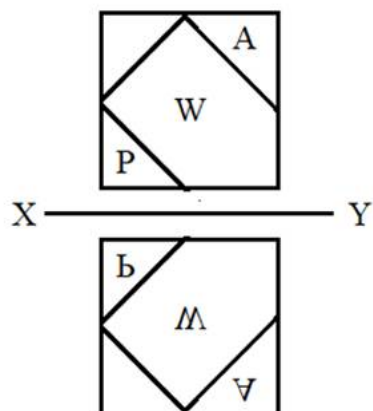
Hence, option D is the correct answer.

30. C

Sol. Leonine is the adjective to describe a lion or something that resembles a lion. Similarly, bovine relates to cattle or something that affects the cattle.

Hence, option C is the correct answer.

31. B

Sol. 1) U is between Q and R.

2) S is just opposite of Q and second to the left of V.

3) P and T are not seated opposite to each other, but P is second to the right of U.
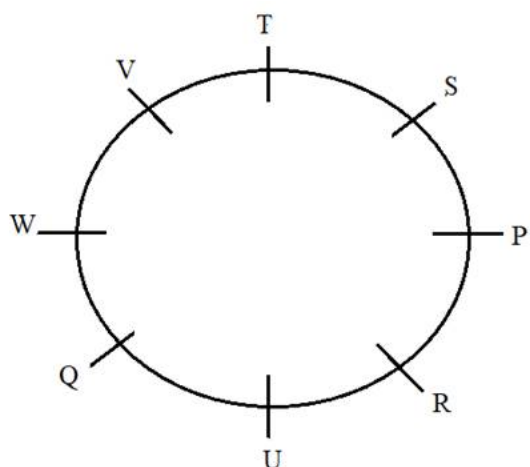
U is seated just opposite of T. Hence, option B is correct.

32. C

Sol. Here, we can choose the series in different groups in which each group consists of three numbers in which the second number increases by 2 from the previous one and then the product of these first two numbers is taken. Again, the first number of the next groups increases by 2, and the same process continues. Hence, option C is correct.

33. D

Sol. The first letters are in alphabetical order with two letters skipped in between each segment, i.e., M, P, S, V, Y. The second and third letters are repeated; they are also in order with one skipped letter, i.e., D, F, H, J, L. Hence, option D is correct.

34. B

Sol. The given information may be represented by the following venn diagram, where 'C' is coffee and 'T' is tea.
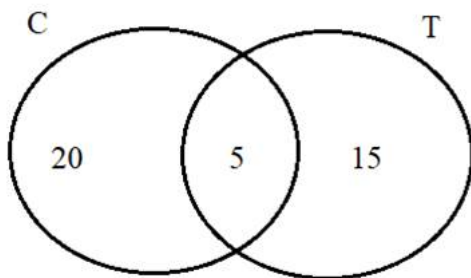
Number of students who only had coffee = 25 – 5 = 20
Number of students who only had tea = 20 – 5 = 15
Number of students who didn't have coffee or tea = 60 – (20 + 15 + 5) = 20
Hence, option B is correct.

35. C

Sol.

The reverse or opposite letter of each alphabet of each word in terms of alphabetical order the English alphabet is taken and positioned in the same way as they are in the original word.

Or, the sum of the positions of the respective alphabets in LOTUS and OLGFH is 27 i.e., the sum of the position of T and the position of G is 27, and so on.

Thus, MONK will be coded as 'NLMP'.

Hence, option C is the correct answer.

36. B

Sol. Students who sought admission in the college could not score qualifying marks.Hence, many seats are vacant in the college. Hence, statement II is the cause; statement I is its effect.

37. D

Sol. Statement I is talking about the manufacturing companies that are shutting down in India, which is one of the main causes of increasing unemployment in the country.

Statement II is also talking about shutting down of a factory, jute factory in particular, for a particular cause that may not be the same for the companies mentioned in statement I. Hence, these statements are effects of some reason that may be independent or common. Thus, the Answer cannot be determined. Hence, option D is the right answer.

38. B

Sol. Tree felling or deforestation leads to a decrease in rains.

Therefore, II is the cause and I the effect.

Hence, the correct Answer is option B.

39. D

Sol. This is a simple alternating addition and subtraction series. The first series begins with 22 and adds 3; the second series begins with 18 and subtracts 3. Hence, option D is correct.

40. B

Sol. According to the given information, we can draw the following family diagram:
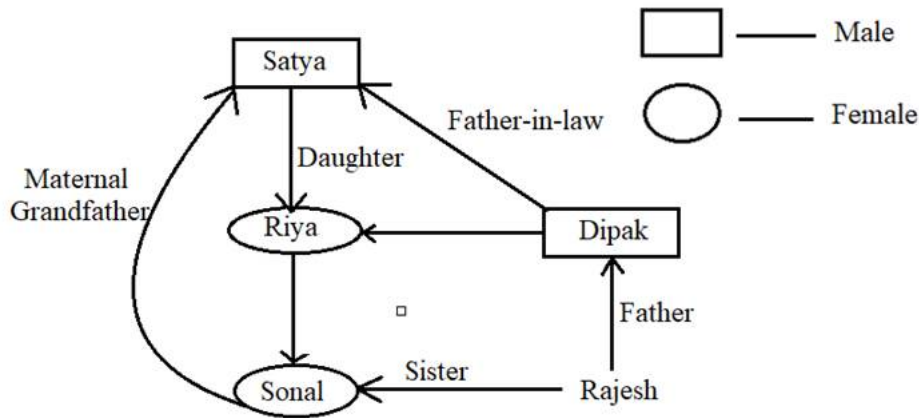
Thus, Satya is the maternal grandfather of Sonal. Hence, option B is correct.

41. B

Sol. Let Shankar borrow the amount at x% simple interest per annum.

So, the interest paid by Shankar = $\dfrac{40000 \times x \times 1}{100}$ = Rs. 400x

Interest paid by Raghav = $\dfrac{40000 \times 18 \times 7}{100 \times 12}$ = Rs. 4200

According to the question, we can write the following:

400x = 4200

$\Rightarrow$ x = 10.5

Thus, Shankar borrowed the amount at 10.5% simple interest per annum.

Hence, option B is the correct answer.

42. B

Sol. By looking at the table, we can see that the numbers in the rows are written in the form of n(n + 1)

3 × 4	5 × 6	7 × 8
4 × 5	6 × 7	8 × 9
1 × 2	3 × 4	?
10 × 11	12 × 13	14 × 15

Thus, in the blank, 5×6 or 30 can come.

Hence, option B is the correct answer.

43. A

Sol. Let the breadth of the field be 'B', so its length is 2.5B.

Thus, area of field = $2.5B^2 = 250$

$\Rightarrow$ B = 10 m

So, the perimeter of field = 2(10 + 25) = 70 m

Therefore, the cost of fencing = 10×70 = Rs. 700

Hence, option A is the correct answer.

44. C

Sol. The number of diagonals for any regular polygon with 'n' sides is given by $\frac{n(n-3)}{2}$.

Given: $35 < \frac{n(n-3)}{2} < 65$

$70 < n(n-3) < 130$

By trial and error, the value of n that will satisfy the given condition is 11 and 12.

Hence, option C is the correct answer.

45. C

Sol. Probability that Vishwa hits the target, P = $\frac{1}{5}$

So, probability that Vishwa misses the target = $\frac{4}{5}$

Probability that at least one shot hits the target = 1 − P (None of the shots hits the target) =

$1 - \frac{4}{5} \times \frac{4}{5} \times \frac{4}{5} \times \frac{4}{5} = 1 - \frac{256}{625} = \frac{369}{625}$

Hence, option C is the correct answer.

46. D

Sol. Given: $f(x^2 – 8x + 20) = 5x^2 – 3x + 12$.

Let $x^2 – 8x + 20 = 4$.

So, $x^2 - 8x + 16 = 0$

49. C

Sol. Let p, q, and r be 24a, 24(a + 1), and 24(a + 2), respectively.

According to the question, we can write the following:

24a $\times$ 18 = 24(a + 1) $\times$ 6 + 24(a + 2) $\times$ 2

$\Rightarrow$ 432a = 144a + 144 + 48a + 96

$\Rightarrow$ 240a = 240

$\Rightarrow$ a = 1

So, p, q, and r are 24, 48, and 72, respectively.

Now, we can put the values of p, q, and r in the options and can verify the linear equations.

We can see that only equation 14p = 10q − 2r satisfies the condition.

Hence, option C is the correct answer.

50. D

Sol. Let the number of marbles with Sunaina be 'S'.

So, the number of marbles with Manisha = 2.5S

Number of marbles with Anisha $= 3 \times 2.5 \times S = 7.5S$
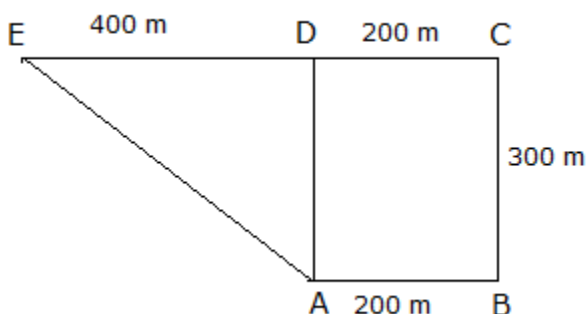
Given: $7.5S + 2.5S + S = 110$

$\Rightarrow S = 10$

Thus, the number of marbles with Manisha $= 2.5 \times 10 = 25$

Hence, option D is the correct answer.

51. B

Sol.

Let the initial position of Nitin be 'A' and the path covered by Nitin be ABCDE.

The final position of Nitin is point E.

To find AE, consider right-angled triangle ADE,

$AE^2 = AD^2 + DE^2$

$AE = \sqrt{300^2 + 400^2} = 500$ metres.

Hence, option B is the correct answer.

52. B

Sol. The pattern of the given series is as follows:

$46 = 28 + 18$

$100 = 46 + 18 \times 3^1$

$262 = 100 + 18 \times 3^2$

$748 = 262 + 18 \times 3^3$

$2206 = 748 + 18 \times 3^4$

Hence, option B is the correct answer.

53. D

Sol. It is given that $\log_8(2 + \log_9(\log_9(x - 15) - 2)) = \frac{1}{3}$

$\Rightarrow (2 + \log_9(\log_9(x - 15) - 2)) = 8^{\frac{1}{3}}$

$\Rightarrow 2 + \log_9(\log_9(x - 15) - 2) = 2$

$\Rightarrow \log_9(\log_9(x - 15) - 2) = 2 - 2 = 0$

$\Rightarrow \log_9(x - 15) - 2 = 9^0 = 1$

$\Rightarrow (x - 15) = 9^3 = 729$

$\Rightarrow x = 744$

Hence, option D is the correct answer.

54. D

Sol. Let a man and a boy complete 'a' and 'b' units of work in a day.

So, total work done by Team A = 12(8a + 4b)

Total work done by Team B = 10(9a + 6b)

Since both the teams completed the same work, we can write the following:

12(8a + 4b) = 10(9a + 6b)

$\Rightarrow$ 6(8a + 4b) = 5(9a + 6b)

$\Rightarrow$ 48a + 24b = 45a +30b

$\Rightarrow$ 3a = 6b

$\Rightarrow$ a = 2b

So, total work = 12(8a + 2a) = 120a units

The total number of men and boys in Team A and Team B together are 17 and 10, respectively. The work done by 17 men and 10 boys in a day = 17a + 10b = 17a + 5a = 22a units

Required answer = $\dfrac{120}{22} = \dfrac{60}{11} = 5\dfrac{5}{11}$ days

Hence, option D is the correct answer.

55. C

Sol. As there are 7 members, the number of seating arrangements around a round table that is possible $= (7 - 1)! = 6!$

Since Asha and Nisha sit together, let us consider them as a single entity.

Thus, the possible arrangements $= (6 - 1)! \times 2! = 5! \times 2!$

Required probability $= \dfrac{5! \times 2!}{6!} = \dfrac{2}{6} = \dfrac{1}{3}$

Hence, option C is the correct answer.

56. A

Sol. The first bell rings after every 8 minutes or 480 seconds.

The second bell rings after every 270 seconds.

Now, LCM of 480 and 270 = 4320 = 72 minutes

Thus, they will ring together at 10:00 a.m. + 72 minutes = 11:12 a.m.

Hence, option A is the correct answer.

57. B

Sol. According to the question, we can write the following:

$\frac{288}{x-12} - \frac{288}{x} = 4$

$\Rightarrow$ 72x − 72(x − 12) = x(x − 12)

$\Rightarrow$ 72x + 864 − 72x = x(x − 12)

$\Rightarrow$ 864 = x(x − 12)

$\Rightarrow$ 36(36 − 12) = x(x − 12)

By comparing both sides, we get the following:

x = 36

Hence, option B is the correct answer.

58. B

Sol. The pattern of the given series is as follows:

898 − 8^3 = 386

386 − 7^2 = 337

337 − 6^3 = 121

121 − 5^2 = 96

96 − 4^3 = 32

So, the next term will be as follows:

32 − 3^2 = 23

Hence, option B is the correct answer.

59. D

Sol. Five years ago, the age of Ravi was x years. So, the age of Rashmi at that time was 5x years.

Four years from now, Ravi's age will be (x + 5 + 4) = (x + 9) years.

And Rashmi's age will be (5x + 5 + 4) = (5x + 9) years

According to the question, we can write the following:

$\frac{x+9}{5x+9} = \frac{1}{2}$

$\Rightarrow$ 2x + 18 = 5x + 9

$\Rightarrow$ 3x = 9

$\Rightarrow$ x = 3

Required answer = x + 5 + 5x + 5 = 6x + 10 = 28 years

Hence, option D is the correct answer.

60. B

Sol. The sums of the sales of both types of cars for the given years are as follows:

2015	1600
2016	1500
2017	1470
2018	1620
2019	1780

In 2016 and 2017, the sale of cars X and Y combined was less than that of the previous year.

Thus, there are two years for which the given condition is satisfied.

Hence, option B is the correct answer.