**Total Questions:** 40

**Time:** 1 hour

## DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED TO DO SO

- All questions are compulsory.

- Read the instructions on the **ANSWER SHEET** and fill in your **NAME**, **CLASS** and **OTHER INFORMATION**.

- To mark your choice of answer by darkening the circles in the **ANSWER SHEET**, use a **BLUE/BLACK BALL Pen** only.

- You **MUST** record your answers on the **ANSWER SHEET** only.

- There are **40 MULTIPLE CHOICE QUESTIONS**.
  Use the information provided to choose the **BEST** answer among the four possible options.
  On your **ANSWER SHEET** fill in the circle that matches your answer.

- Marks are **NOT** deducted for incorrect answers.

- Return the **ANSWER SHEET** to the invigilator at the end of the examination.

- You are **NOT** allowed to use a calculator.
  You may use a ruler and spare paper for rough work.

## Section A (Logical Reasoning)

**(This section contains 8 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)**

1. Which of the following correctly represents the relationship between soldiers, pilots and fighters?

   (A) 

   (B) 

   (C) 

   (D) 
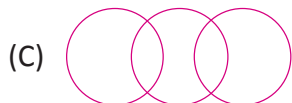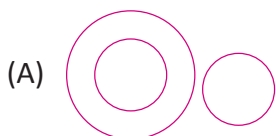
2. Consider the matrix below:

   | 5 | −9 | 14 |
   |----|----|----|
   | 7 | 11 | −4 |
   | 8 | ? | 1 |
   | 15 | 6 | 9 |

   Which of the following numbers can accurately replace the question mark in the matrix?

   (A) 1                                 (B) 3

   (C) 5                                 (D) 7

3. If + means ×, × means −, − means ÷ and ÷ means +, then $18 \div 4 + 3 \times 2 - 2 =$ _____.

   (A) 45                               (B) 48

   (C) 39                               (D) 29

4. Fill in the missing term with the most appropriate option.

   24, 32, 28, 36, 32, _____

   (A) 36                               (B) 38

   (C) 40                               (D) 42

5. If a clock shows 6 hours 07 minutes, then what time does its mirror image show?

   (A) 5 hour 53 minutes                    (B) 6 hour 53 minutes

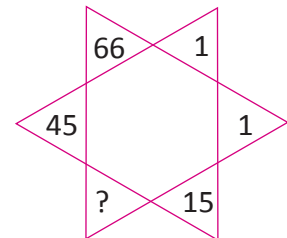   (C) 07 hour 53 minutes                 (D) 6 hours 12 minutes

6. Five boys A, B, C, D and E are standing in a row. A is between C and D, and B is between D and E. Which of the following pairs represents the boys standing at both the ends?
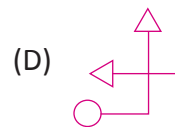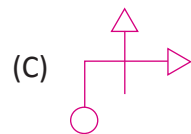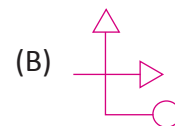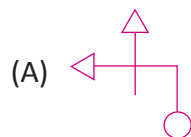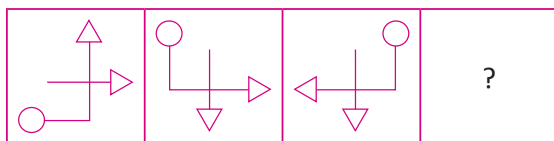
   (A) C, B

   (B) E, A

   (C) A, C

   (D) E, C

7. Fill in the missing term.

   (A) 22

   (B) 25

   (C) 26

   (D) 28



8. Select the correct option to find the sequence of the pattern of symbols.



   (A) 

   (B) 

   (C) 

   (D) 

## Section B (Subject Specific)

**(This section contains 25 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)**

9. What is the cube root of one third of the square of 243?

   (A) 9

   (B) 27

   (C) $27\sqrt{3}$

   (D) 81

10. The numbers 2 and 5 are factors of which of the following numbers?

    (A) 26

    (B) 30

    (C) 36

    (D) 45

11. If the power set of P(A) has 256 elements, then how many elements are there in set A?

    (A) 1

    (B) 2

    (C) 3

    (D) 4

12. Radha, who is a typist, types 2880 words in one hour. Assuming that her typing speed is constant, how many words does she type in 45 minutes?

(A) 1800

(B) 1940

(C) 2160

(D) 2420

13. What is the factorised form of the polynomial $4p^3 - 4p^2q - 9pq^2 + 9q^3$?

(A) $(p - 1) (2p + 3q)^2$

(B) $(p + q)^2 (2p - 3q)$

(C) $(p - q) (2p + 3q) (2p - 3q)$

(D) $(p + q) (2p + 3q) (2p - 3q)$

14. Samira bought twenty five candies for her sons Vicky, Rocky and Hiren. Vicky ate four candies more than Hiren, whereas Rocky ate Seven candies less than twice the number of candies eaten by Hiren. If Hiren ate x candies, then which equation represents the given situation?

(A) $3 - 4x = 25$

(B) $4 - 3x = 25$

(C) $4x - 3 = 25$

(D) $3x - 4 = 25$

15. Two adjacent angles of a quadrilateral measure 130° and 40°. The sum of the remaining two angles is _____.

(A) 190°

(B) 180°

(C) 360°

(D) 90°.

16. Some small cubes each having a volume of 8 cm³, are joined together to form a cubical block of volume 160 cm³. How many such cubes are required for this purpose?

(A) 18

(B) 20

(C) 22

(D) 25

17. Which of the given sets of values of x satisfies the following statement? "Seven minus two times a number (x) is less than three times the number (x) added to thirty two."

(A) x < 5

(B) x > 5

(C) x < –5

(D) x > –5

18. The value of the expression $\left( \frac{6}{7} \times \frac{5}{7} \right)$ is equivalent to the value of which of the following expressions?

(A) $\frac{16}{49} + \frac{12}{49}$

(B) $\frac{17}{49} + \frac{12}{49}$

(C) $\frac{18}{49} + \frac{12}{49}$

(D) $\frac{19}{49} + \frac{12}{49}$

19. The interest on a sum of money at the end of 4 years is $\frac{3}{5}$ of the sum. What is the rate percent?

(A) 16%

(B) 14%

(C) 12%

(D) 15%

20. 100 apples are bought for ₹350 and all of them are sold at the rate of ₹48 per dozen. Find the profit percent or loss percent made.

(A) $14\left(\dfrac{2}{7}\right)$

(B) $23\left(\dfrac{4}{5}\right)$

(C) $11\left(\dfrac{5}{9}\right)$

(D) $\dfrac{23}{6}$

21. 11:12 ☐ 1:2

(A) <

(B) >

(C) =

(D) Can not find

22. In an election, two candidates Amit and Bittu contested. Bittu got 60% of the votes. The total votes polled were 8000. How many votes did Amit get?

(A) 4800

(B) 3800

(C) 3200

(D) 4200

23. If 2x + 20 = 4x, then what is x?

(A) x = 7

(B) x = 8

(C) x = 10

(D) x = −10

24. The linear equation that represents the statement, '4 times the number of coins (x) in my pocket plus 5 more is equal to 29', is _____.

(A) 4(x − 5) = 29

(B) 4x + 29 = 5

(C) 4x + 5 = 29

(D) None of these

25. In a rhombus ABCD, diagonals AC and BD are respectively 8 cm and 6 cm, the length of each side of rhombus is _____.

(A) 7 cm

(B) 5 cm

(C) 6 cm

(D) 8 cm

26. The number of triangles that can be drawn with any three of the lengths 1 cm, 4 cm, 6 cm and 8 cm is _____.

(A) One

(B) Two

(C) Three

(D) Four

**Study the given pie graph (pie chart) and answer the questions 27 to 30.**
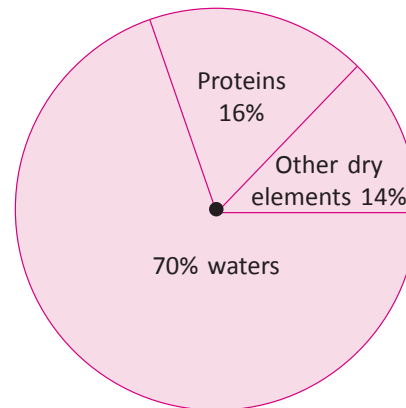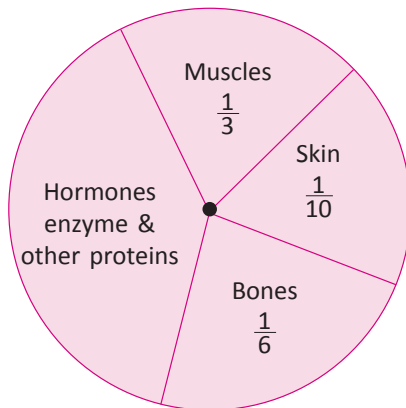


27. In the human body, what part is made of neither bones nor skin?

    (A) $\frac{2}{5}$
    (B) $\frac{3}{5}$

    (C) $\frac{11}{15}$
    (D) $\frac{3}{80}$

28. What is the ratio of the distribution of proteins in the muscles to that of the distribution of proteins in the bones?

    (A) 1 : 18
    (B) 18 : 1

    (C) 2 : 1
    (D) 1 : 2

29. What per cent of the total weight of human body is equivalent to the weight of the skin in human body?

    (A) .016%
    (B) 1.6%

    (C) 0.16%
    (D) Data inadequate

30. To show the distribution of proteins and other dry elements in the human body, the arc of the circle should subtend at the centre of an angle of _____.

    (A) 54°
    (B) 126°

    (C) 108°
    (D) 252°

31. The ratio of ink and water in 66 L of adulterated ink is 5 : 1. Water is added to the mixture to make the ratio of ink and water 5 : 3. The quantity of water added is _____.

    (A) 20 L
    (B) 22 L

    (C) 24 L
    (D) 26 L

32. The value of $\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}$ is _____.

    (A) 4
    (B) 5

    (C) 6
    (D) 6.5

33. A graph that displays data that changes continuously over periods of time is _____.

    (A) Line graph
    (B) Histogram

    (C) Pie chart
    (D) Bar graph

## Section C (Competency Based)

**(This section contains 7 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which TWO are correct.)**

34. A trader purchased two washing machines each for ₹9,000. He sold one at a loss of 10% and the other at a gain of 10%. His gain % or loss % is _____.
    (A) Gain 1%
    (B) Loss 1%
    (C) No gain
    (D) No loss

35. Factors of $r^2 - 10r + 21$ are _____.
    (A) $r - 7$
    (B) $r + 7$
    (C) $r + 3$
    (D) $r - 3$

36. We have 4 congruent equilateral tringles, what else do we need to make a pyramid?
    (A) An equilateral triangle.
    (B) A square with same side length as of the triangle.
    (C) 2 equilateral triangles with side length same as the triangle.
    (D) 2 squares with side length same as the triangle.

37. A trapezium with three equal sides and one side double the equal sides can be divided into _____ equilateral triangles of _____ area.
    (A) 2
    (B) 3
    (C) Equal
    (D) Unequal

38. Choose the correct statements.
    (A) The exponential form for $(-2)^4 \times \left(\dfrac{5}{2}\right)^4$ is $5^4$.
    (B) The value of $(-6)^0$ is $(-1)$.
    (C) The value of $5^{-2}$ is equal to 25.
    (D) $329.25 = 3 \times 10^2 + 2 \times 10^1 + 9 \times 10^0 + 2 \times 10^{-1} + 5 \times 10^{-2}$

39. Given that the number $59142a$ is divisible by 4, where $a$ is a digit. The possible values of 'a' are _____.
    (A) 2
    (B) 4
    (C) 6
    (D) 8

40. What are the possible remainders if polynomial of degree 4 is divided by polynomial of degree 2?
    (A) Polynomial of degree 2
    (B) Polynomial of degree 1
    (C) Constant term
    (D) Polynomial of degree 0