UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD *(UPDATED)*

CLASS - 5
Question Paper Code : UM9009

KEY

1. C	2. A	3. C	4. D	5. A	6. A	7. A	8. A	9. A	10. A
11. D	12. C	13. D	14. D	15. C	16. B	17. B	18. B	19. A	20. C
21. B	22. B	23. A	24. A	25. D	26. D	27. D	28. B	29. A	30. B
31. A	32. A	33. D	34. B	35. A	36. D	37. C	38. A,D	39. D	40. D
41. B	42. A	43. D	44. B	45. C	46. B	47. D	48. B	49. D	50. C

EXPLANATIONS

MATHEMATICS

1. **(C)** $\frac{7}{25} \times 100\% = 28\%$

2. **(A)** $\angle x = \angle y = \angle z = \frac{90°}{3} = 30°$

   $\angle w + \angle x = 90° + 30° = 120°$

3. **(C)** Multiples of 3 = 3, 6, 9, 12, 15, 18, 21 (24)

   Multiples of 4 = 4, 8, 12, 16, 20, (24)

   Multiples of 6 = 6, 12, 18, (24)

   The number bigger than 12 and smaller than 25 and the common multiple of 3, 4 and 6 is 24

4. **(D)** 13:30 to 18:05 is 4 h 35 min

   Duration of time he workd = 1 h 50 min + 2 h 5 min = 3 h 55 min

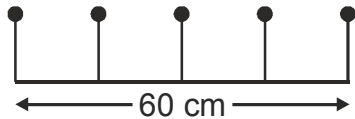   4 h 35 min – 3 h 55 min = 40 min

   His break was 40 min long

5. **(A)** Length of the ribbon is 39.6 m

   It is divided into 300 equal pieces

   39.6 ÷ 300 = (39.6 ÷ 3) ÷ 100

   = 13.2 ÷ 100 = 0.132 m

   The length of ribbon used to make a bow is 13.2 cm

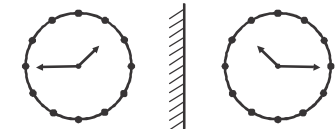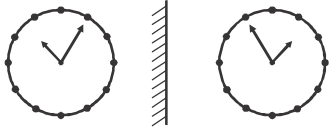**6. (A)** The product 123 × 124 × 125 × 126 × 127 is a multiple of 12; moreover, it also has a factor of 2 three times, from 124 (= 2 × 2 × 31) and from 125 (= 2 × 63). Therefore it is a multiple of 125 × 2 × 2 × 2 = 1000, and so it must end in 000. alternatively, working from the options, it is easily seen that the product is a certainly and even multiple of 5 - so its unit digit is 0.

7. (A) Taking each option we have $\frac{1 \times 5}{2 \times 4} = \frac{5}{8} = \frac{15}{24}$

so option A is true. For the other options,

B: $\frac{2 \times 4}{3 \times 5} = \frac{8}{15} = \frac{24}{45} < \frac{24}{35}$

C: $\frac{3 \times 3}{4 \times 6} = \frac{9}{24} = \frac{3}{8} < \frac{33}{46}$ since $\frac{3}{8}$ is less than $\frac{1}{2}$

D: $\frac{4 \times 2}{5 \times 7} = \frac{8}{35} < \frac{42}{57}$ since $\frac{8}{35}$ is much less than $\frac{1}{2}$

E: $\frac{5 \times 1}{6 \times 8} = \frac{5}{48} < \frac{51}{68}$ since $\frac{5}{48}$ is much less than $\frac{1}{2}$

8. (A) 1000 ml = 1 l

7040 ml = $\frac{7040}{1000} l$ = 7.04 l

Amount of water they drink in 5 days

= 5 × 7.04 = 35.2 l

9. (A) The given figure becomes a cuboid if it has 4 × 3 × 2 = 24 cubes

The no. of cubes in the given figure = 11

The no. of cubes that must be added to make it a cuboid = 24 − 11 = 13

Hence, its volume

= 13 × 2 × 2 × 2 cm³ = 104 cm³

10. (A) Area of unshaded part

= (12 × 6) + (5 × 21) + (12 × 21)

= 72 + 105 + 252 = 429 cm²

11. (D) Snoozing for 40 minutes every hour through the day is $\frac{4}{6}$ of every hour and thus $\frac{4}{6}$ of the day. Of 24 hours, $\frac{4}{6}$ is 16 hours

12. (C) Number of cows the farmer had in the end

= 30 − 15 = 15

Number of cows and goats the farmer had in the end

= 15 + 40 = 55

Ratio of the number of cows to the number of cows and goats the former had in the end

= 15 : 55 = 3 : 11

13. (D) Volume of the given solid = Total volume of the three solids in it

= [(2 × 2 × 3) + (7 × 3 × 5) + (5 × 3 × 3)]cm³

= [12 + 105 + 45] cm³ = 162 cm³

14. (D)

Distance between any two consecutive plants = $\frac{60 \text{ cm}}{4}$ = 15 cm

15. (C) We can tell that one-third of the plum jam weighs 400 − 250 = 150 g (without the pot itself). Hence the pot on its own weighs 250 − 150 = 100 g. and a full pot of jam weighs 150 × 3 + 100 = 550 g

16. (B) $2\frac{2}{3}$ hours to 64 minutes

1 hour = 60 minutes

$2\frac{2}{3}$ hours = 120 minutes + 40 minutes

= 160 minutes

= 160 : 64 = 20 : 8 = 5 : 2

17. (B) Area of triangle A : Area of Rectangle B = 3 : 8

$\frac{1}{2} \times b \times h : B = 3 : 8$

$\frac{1}{2} \times 9 \times \cancel{6}^{3} : B = 3 : 8$

27 : B = 3 : 8

3B = 27 × 8

$B = \frac{\cancel{27}^{9} \times 8}{\cancel{3}}$

B = 72 cm²

Area of rectangle B = 72 cm²

18. **(B)** Area of bigger triangle = $\frac{1}{2} \times 20 \times (18+6)$

= 240 m²

Area of smaller triangle = $\frac{1}{2} \times 20 \times 6 = 60 \text{ m}^2$

Area of shaded part = 240 - 60 = 180 m²

19. **(A)** A chess board has 8 × 8 = 64

squares of which 32 are black.

Hence, the percentage of black squares

$= \frac{32}{64} \times 100\% = 50\%$

20. **(C)** 2 units → 1476890 − 1500 = 1475390

1 units → 1 475390 ÷ 2 = 737695

Greater number = 737695 + 1500

= 739195

21. **(B)** 0.3 m = 0.3 × 100

= 30 cm

4.3 m = 4 m 30 cm

22. **(B)** $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{150 \text{ km}}{5 \text{ h}}$ = 30 km/h

23. **(A)** Discount = 15% of ₹ 175

$= \frac{15}{100} \times ₹\ 175$

= ₹ 26.25

24. **(A)** Amount = ₹ 8800, Interest = ₹ 1000

P = Amount − Interest

= ₹ 8800 − ₹ 1000 = ₹ 7800

25. **(D)** $\text{S.I} = \frac{PTR}{100}$

$P = \frac{100 \times \text{S.I}}{T \times R}$

$= \frac{\cancel{100}^{25} \times \cancel{800}^{200}}{\cancel{4} \times \cancel{4}} = ₹\ 5000$

26. **(D)** The temperature indicated on the given thermometer is 37°C, which is the normal body temperature of a human being

27. **(D)** From fig.1 we get 2P = 6Q → P = 3Q ...(1)

From fig.2 we get 6Q = 3R→R = 2Q...(2)

P + R = 3Q + 2R = 5Q

Hence 5 blocks of Q must be placed to balanced the scale

28. **(B)** $\frac{5}{6}$ of a complete turn

$= \frac{5}{6} \times 360° = 5 \times 60° = 300°$

29. **(A)** Capacity of water, container A holds = 5 l 50 ml = 5050 ml

Capacity of water, container B holds = 2790 ml

= 5050 − 2790 = 2260 ml

= 2 l 260 ml

30. **(B)** Time = Distance ÷ Speed

= 1040 ÷ 160

= 6.5 h

31. **(A)** C.P = ₹ 5600 = ₹ 6500

Since SP > C.P

Therefore Nishanth makes a profit

Profit = S.P − C.P

= 6500 − 5600 = ₹ 900

32. **(A)** 1 decalitre = 10 litres

15 decalitres = ?

15 × 10 = 150 litres

33. **(D)** As 2805 ÷ 2.55 = 1100,

$280.5 ÷ 25.5 = \frac{1100}{100} = 11$

34. **(B)** Capacity of water in Neha's aquarium = 2400 cu.cm

Length = 20 cm, width = 12 cm

V = l × w × h

2400 = 20 × 12 × h

2400 = 240 × h

h = 2400 / 240 = 10 cm

The height of water in Neha's aquarium is 10 cm

35. **(A)** 28.5 × 7 − 27 × 3 − 29 × 3 = 31.5 °C

REASONING	CRITICAL THINKING

REASONING

36. **(D)** Rotate outer image 90° in anti-clockwise direction. Inner triangle points to downward and upward alternatively.

37. **(C)** Ganesh > Rakesh > Manoj > Ashok > Sanjeev

38. **(A,D)** $(7 + 4) - (3 + 3) = 5$

$6 + 8 - (5 + 0) = 9$

(or)

$[(7 \times 4) + 2] \div (3 + 3) = 5$

$[(6 \times 8) + 2] \div (5 + 0) = 10$

39. **(D)** ATIONFOUND
↓
6th letters

40. **(D)** 'D' is coded for plane figures.

Slanting liner are coded as 'F'.

 is coded as R.

Hence answer is RD.

41. **(B)** Outside figure has '1' more side than inside figure in A, C, D options, whereas in option B, outside figure is one side less than inside figure.

42. **(A)** $60 - 78, \quad 82 - 102, \quad 93 - 115, \quad 106 - 130$
$\quad\quad +18 \quad\quad\quad +20 \quad\quad\quad +22 \quad\quad\quad +24$

43. **(D)**

44. **(B)**

45. **(C)** Total number of students in the class

$16 + 29 - 1 + 6 + 5 = 55$

CRITICAL THINKING

46. **(B)** BG BG BG BG BG BG BG BG

$\dfrac{1}{3^{rd}}$ Boys = $\dfrac{1}{2^{nd}}$ girls

$\dfrac{B}{G} = \dfrac{3}{2} \Rightarrow B : G = 3 : 2$

$3x + 2x = 20$

$x = 4$

∴ Number of boys = $3 \times 4 = 12$

47. **(D)**

48. **(B)** Book, Chapter, Paragraph, Sentence, Word, Letter,

49. **(D)**

Question figure

50. **(C)** Option (C) resembles the given figure.

The End