UIM
Unified International Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD

CLASS - 5
Question Paper Code : UM9267

KEY

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B	B	D	A	B	C	B	B	B	B
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
D	A	A	A	A	B	D	B	C	B
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
B	A	D	A	C	C	C	B	A	A
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
C	B	C	A	B	D	C	D	B	B
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
B	B	A	B	C	A	D	B	B	C

EXPLANATIONS

MATHEMATICS

01. (B)   Boys

Girls
?

Boys = 8 + 16 = 24

Girls = 8

Total = 24 + 8 = 32

02. (B)   No. of marbles with John = More than 50 but less than 60

The no. of marbles between 50 and 60, he divide equally into 2 groups or into 3 groups i.e., 54.

03. (D)   1 $= 1$ cm^2 ; 2 $= 1$ cm^2

Area of the shaded part

$= 4$ $+ 8$

$= 4$ cm$^2 + 4$ cm$^2 = 8$ cm^2

The area of the shaded part of this square is 8 cm^2

04. (A) 49.4

05. (B) The time Naren family watched a movie at = 22:35 i.e., 10:35 pm

Duration of the movie = 2 h 35 min

10:35 + 2 h 35 min = 12 h 70 min

= 1 h 10 min

Time taken to reach home

= 2 h 10 min − 1 h 10 min

= 1 hour

06. (C) $2\dfrac{5}{8} = \dfrac{21}{8} = 2.625$

07. (b) Image A = 13 cubes

Image B = 11 cubes

i.e., to make both the images equal, need to remove 2 cubes from image A

08. (B) $6\% \times 400 = \dfrac{6}{100} \times 400 \times \dfrac{1}{10} \times 10$

$= \dfrac{6}{1000} \times 4000$

$= 0.006 \times 4000$

$= \dfrac{6}{1000} \times 4000$

$= 0.006 \times 4000$

09. (B) Given length of a rectangle = 18 cm

Length of a square = 18 ÷ 3 = 6 cm

Area of a square = 6 × 6 = 36 cm²

Area of the rectangle = 36 × 5 = 180 cm²

10. (B)
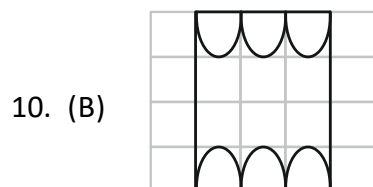
11. (D) $48.015 = 40 + 8 + \dfrac{0}{10} + \dfrac{1}{100} + \dfrac{5}{1000}$

$= 40 + 8 + \dfrac{1}{100} + \dfrac{5}{1000}$

12. (A) Capacity of 1 packet of milk = 250 ml

Amount of milk leaked from the packet every day = 5 ml

Number of days it take for the packet to be empty = 250 ml ÷ 5 ml = 50 days

13. (A) Amount paid by Farah for 3 books and 6 pencil boxes = ₹65.70

Cost of pencil box is ₹11.40 cheaper than a story book

So, 3 story books = ₹11.40 × 3 = ₹34.20

= ₹65.70 − ₹34.20 = ₹31.5

Total items = 9

$\Rightarrow$ ₹31.5 ÷ 9 = ₹3.5

So, cost of 1 pencil box = ₹3.5

Cost of 1 story book = ₹3.5 + ₹11.40

= ₹14.9

14. (A) Length of a ribbon required to make a bow = 15.7 cm

Length of a ribbon required to wrap a present = 15.7 cm × 3 = 47.1 cm

Length of a ribbon required altogether = 47.1 cm + 15.7 cm = 62.8 cm

15. (A) Sum of $\dfrac{3}{4}$ of 800 and $\dfrac{3}{4}$ of 100

$= \dfrac{3}{4} \times \overset{200}{\cancel{800}} + \dfrac{3}{4} \times \overset{25}{\cancel{100}}$

= 600 + 75 = 675

16. (B) Rounding off each number of the nearest ten

13455 → 13460

4567 → 4570

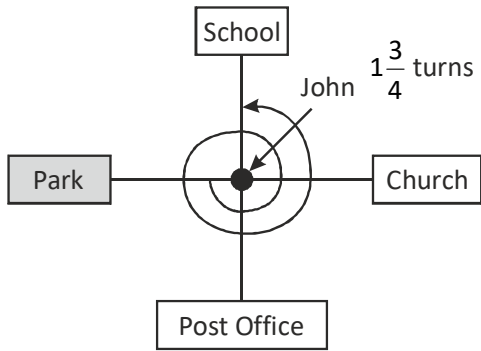= 13460 − 4570 = 8890

17. (D) Let the numbers be 24 and 20

Then their H.C.F = 24 and L.C.M = 240

LCM = 240 is 10 times their HCF = 24

18. (B) Number of brooms sold $= \dfrac{2}{3} \times 105 = 70$

70 × ₹ 70 = 4900

₹4900 was collected from the sale of the brooms

19. (C) Rope A : 12 pieces → 2 m

1 piece → $\dfrac{2}{12} = \dfrac{1}{6}$m

4 pieces → $\dfrac{1}{6} + \dfrac{1}{6} + \dfrac{1}{6} + \dfrac{1}{6} = \dfrac{4}{6} = \dfrac{2}{3}$m

Rope B : 8 pieces → 16 m

1 piece → 16 ÷ 8 = 2 m

2 pieces → 2 × 2 = 4 m

Total length = $\dfrac{2}{3} + 4 = 4\dfrac{2}{3}$m

20. (B) Time = $\dfrac{\text{Distance}}{\text{Speed}} = \dfrac{90}{45} = 2$ hours

21. (B) 9.65, 8.298, 5.97, 0.23 is in descending order.

22. (A) Between 8 AM to 12 noon the rise in temperature is maximum

23. (D) 1 m = 100 cm

986 cm = 986 ÷ 100 = 9.86 m

24. (A) 1 cup = 175 gm

In 1 kg, 2 cups of sugar is added

So, in 6 kg 12 cups of sugar will be added

12 × 175 = 2100 gm = 2.1 kg

25. (C) P = Intersection, Q = 2, R = Perpendicular

26. (C) Either 999 (or) Greatest 3-digit number

27. (C) If May 1st is a Tuesday, then the 7th, 14th, 21st and 28th would be Mondays (i.e., 4 Mondays). So, May 1st could not be a Tuesday

28. (B) 7 × 17 × 17 = 2023

29. (A) Cost price of goods = ₹900 + ₹225

= ₹1125

Selling price = ₹2000

Profit = S.P − C.P

= ₹2000 − ₹1125 = ₹875 is her profit.

30. (A) Bucket P holds = 10 l

Bucket Q holds = 10 l − 3 l 460 ml

= 10000 ml − 3460 ml = 654 ml

Bucket R = 6540 ml + 4 l 720 ml

= 6540 ml + 4720 ml

= 11260 ml = 11 l 260 ml

31. (C)

Mark $1\dfrac{3}{4}$ turns night or a $\dfrac{3}{4}$ turn to the left to get the 'before' position, which is the school

32. (B) Length of the garden = area ÷ breadth

= 333 ÷ 9

= 37 m

Perimeter of the garden = 2 × (37 ÷ 9)

= 92 m

A company charge ₹ 450 for 1 m

92m = ₹ 450 × 92 = ₹ 41400

33. (C)

$$4\overline{)0.500}\ (0.125$$
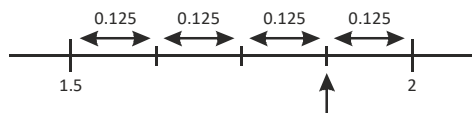
$$\begin{array}{r} 0.125 \\ 4\overline{)0.500} \\ -4 \\ \hline 10 \\ -8 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

2 − 1.5 = 0.5

4 divisions ⟶ 0.5

1 division ⟶ 0.5 ÷ 4

= 0.125

3 divisions ⟶ 3 × 0.125

= 0.375

The number corresponding to the arrow is (1.5 + 0.375 =) 1.875

34. (A) Only l_2 is a line of symmetry. When the figure is folded along l_2. It forms a mirror image of the portion. (This is not true for other lines.)

35. (B)   + + + = 13 + 15

= 28

 + + 12 = 28

 + = 28 − 12

= 16

 = 16 ÷ 2

= 8

REASONING

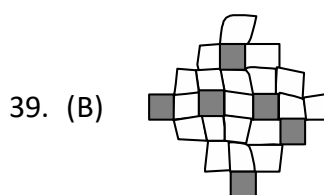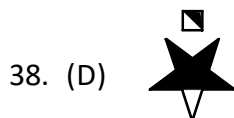36. (D) 6, 7, 8, 9, 10 shapes are mirror images of 1, 2, 3, 4, 5 shapes respectively.

37. (C) 7 + 8 = 15   [# = +]

31 − 12 = 19   [@ = −]

9 × 4 = 36   [& = ×]

15 + 12 = 27   [$ = +]

∴ # and $ represents same mathematical operation.

38. (D)

39. (B)

40. (B) FORTY is spelled in alphabetical order.

41. (B)

C	O	L	O	U	R	F	U	L
#	@	3	@	©	♣	>	©	3

42. (B)

43. (A)
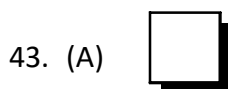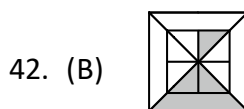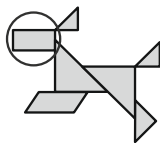
44. (B) Bindu's rank is 8th from last means

30 − 8 + 1 = 23rd from front

Sindhu is 7 ranks ahead of Bindu

23 − 7 = 16th rank

Sindhu's rank from start = 16th
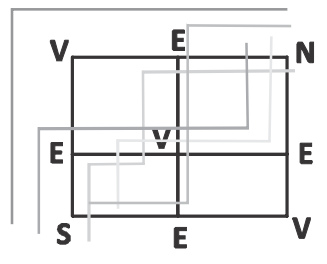
45. (C)
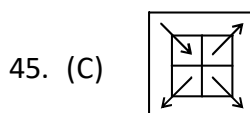
CRITICAL THINKING

46. (A) From the given statement, we can say that there are some drinks which are not Coke. Clearly option (A) is correct.

47. (D) Rectangle is used in option(D) animal only.

48. (B) Three hens and a cow have

3 × 2 + 4 = 10 feet

The number must be divisible by 10

i.e. 30

dog has 4 legs

30 + 4 = 34

49. (B) October has 31 days. Using information 2, numbers from 1 to 31 that when divided by 7 gives a remainder of 3 are 3, 10, 17, 24 and 31, and numbers from 1 to 31 that when divided by 5 gives a remainder of 1 are 1, 6, 11, 16, 21, 26 and 31. Only possible answer is 31. Hence, question can be answered using only information 2.

50. (C)

The End