



Unified International
Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD

CLASS - 5

Question Paper Code : UM9274

KEY

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

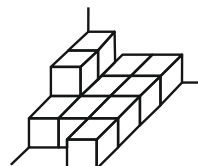
EXPLANATIONS

MATHEMATICS

01. (B) Initial temperature on Sunday = 34°C
 Total fall in temperature by 2:00 a.m. on Monday = $9^{\circ}\text{C} + 3^{\circ}\text{C} = 12^{\circ}\text{C}$
 The temperature at 2:00 a.m. on Monday = $34^{\circ}\text{C} - 12^{\circ}\text{C} = 22^{\circ}\text{C}$
 The temperature rose by 8°C by 8:00 a.m. on Monday.
 \therefore Final temperature at 8:00 a.m. on Monday. = $22^{\circ}\text{C} + 8^{\circ}\text{C} = 30^{\circ}\text{C}$

02. (D) 30% of a number = 24
 $1\frac{1}{2}$ times the number
 = 150% of the number
 $= \frac{24}{30} \times 150 = 120$
03. (D) Right angle measures = 90
 4 right angle = 4×90
 = 360° is a complete angle

04. (C) Area of square = $4 \times \text{shaded area}$
 $= 4 \times 16 \text{ cm}^2$
side \times side = $64 \text{ cm}^2 = 8 \text{ cm} \times 8 \text{ cm}$
side = 8 cm
perimeter = $4s = 4 \times 8 \text{ cm} = 32 \text{ cm}$
05. (C) Every hour temperature drops by 2°C .
To reach 28°C from 40°C , a drop of $40^\circ\text{C} - 8^\circ\text{C}$ is needed.
Hours taken = $12^\circ\text{C} \div 2^\circ\text{C}/\text{hour} = 6 \text{ hours}$
06. (B) Speed of bicycle = $45 \text{ km} \div 3 \text{ hours}$
 $= 15 \text{ km/h}$. Distance covered in 5 hours
 $= 15 \text{ km/h} \times 5 \text{ hours} = 75 \text{ km}$
07. (C) $\text{SI} = ₹ 4,000 \times 6/100 \times 1 = ₹ 240$
08. (B) Profit per chocolate
 $= ₹ 12 - ₹ 10 = ₹ 2$
Total profit for 50 chocolates
 $= 50 \times ₹ 2 = ₹ 100$
09. (B) $300 \times [100 - (28 + 54)]\%$
 $= 300 \times \frac{18}{100} = 54$
10. (C) If 5 parts represent 20 mangoes, then one part represents $20 \div 5 = 4$. For bananas, 3 parts represent $4 \times 3 = 12$ bananas.
11. (D) Trillion > Billions > Millions > Thousands > Hundred.
12. (B) Their sum of the reciprocals =
 $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{12}{6} = 2$
13. (B) 120 cubic units
Since the two cuboids are identical, the volume of the larger cuboid would be twice the volume of one cuboid. 2×60 cubic units = 120 cubic units.
14. (A) Half a circle is 180° . As established, the hour hand moves 180° from 10 to 4, which is half a circle.
15. (C) $X = \text{YYYY}$; $\text{YY} = 5 \text{ litres}$
 $X = 10 \text{ litres}$; $\text{XX} = 20 \text{ litres}$
16. (B) $250 \text{ cm} \div 50 \text{ cm} = 5$
17. (C) The family consumes 3 litres of milk every day. In 18 days, the family will consume $3 \times 18 = 54$ litres.
18. (D) To find the duration, subtract the starting time from the ending time: $5:30 \text{ p.m.} - 3:45 \text{ p.m.} = 1 \text{ hour and } 45 \text{ minutes}$, which is equivalent to 105 minutes.
19. (B) 30 thousands = 30 000
1 million = 1 000 000
 $1\ 000\ 000 - 30\ 000 = 970\ 000$
 $= 9700 \text{ hundreds}$
20. (D) Ex : $12 + 21 = 33$ is divisible by 11
 $53 + 35 = 88$ is divisible by 11
 $41 + 14 = 55$ is divisible by 11
21. (A) Division of the numbers will give the smallest number.
22. (A) 0.7634 m
23. (B) Amount of petrol used on Tuesday
 $= 19.083 \div 2$
 $= 9.5415 \text{ l}$
Amount of petrol left
 $= 43.8 - 19.083 - 9.5415$
 $= 15.1755 \text{ l}$
 $= 15.18 \text{ l}$ (2 dec. places)
24. (A) $18 \times 5 = 90 \text{ kg}$
 $615 \text{ g} \times 5 = 3075 \text{ g}$
 $= 93 \text{ kg } 75 \text{ g}$
25. (D) $\frac{2}{15} + \frac{4}{15} + \frac{5}{15} = \frac{2+4+5}{15} = \frac{11}{15}$
 $\Rightarrow \frac{2}{15} + \frac{8}{15} + \frac{1}{15} = \frac{11}{15}$
26. (B) HCF of 120, 144 & 216 is 24
27. (B)



28. (A) 6

29. (B) $18 \times \frac{18}{3} \times h = 864$

$$h = \frac{864 \times 3}{18 \times 18}$$

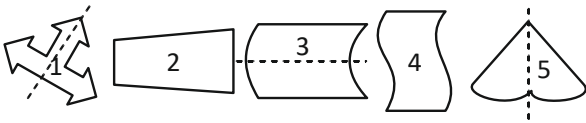
$$h = 8 \text{ cm}$$

30. (C) 39 cm

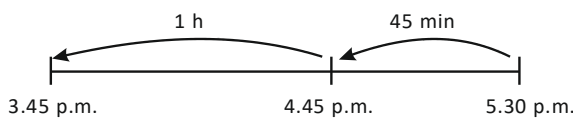
31. (B) 1.67 kg

32. (B) $495\,213 \approx 500\,000$

33. (B)



34. (C) $17 : 30 = 5:30 \text{ p.m.}$



Time her art class started = 3:45 p.m.

35. (C) Multiples of 4: 32, 36, 40, 44, 48, 52, 56, 60, 64, 68 and 72.

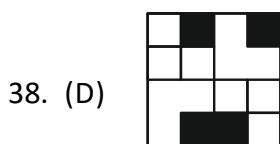
Multiples of 6: 36, 42, 48, 54, 60, 66

Common multiples of 4 and 6 that are between 30 and 70: 36, 48, 60

REASONING

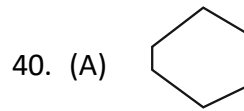


37. (C) DW



39 (C)

$$6 \xrightarrow{(6 \times 2) + 1} 13 \xrightarrow{(13 \times 2) - 1} 25 \xrightarrow{(25 \times 2) + 1} 51$$
$$\xrightarrow{(51 \times 2) - 1} 101 \xrightarrow{(101 \times 2) + 1} 203$$



41. (C) It is clearly seen that in (A) AZ, (B) BY & (D) EV, the sum of position of letters is 27.

'A' - position 1, 'Z' - position 26.

Sum of position of letters 'A' and 'Z'
 $= 1 + 26 = 27$

'B' - position 2, 'Y' - position 25.

Sum of position of letters 'B' and 'Y'
 $= 2 + 25 = 27$

'E' - position 5, 'V' - position 22

Sum of position of letters 'E' and 'V'
 $= 5 + 22 = 27$

But

'C' - position 3, 'W' - position 23

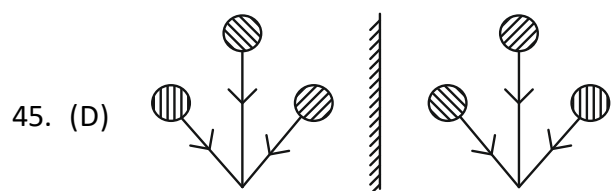
Sum of position of letters 'C' and 'W' = $3 + 23 = 26$.

So answer is (C).

42. (B) $46 - 12 + 1 = 35$

43. (C) $2^2 \xrightarrow{+2} 5^2 \xrightarrow{+2} 8^2 = 64$
 $3^2 \xrightarrow{+2} 6^2 \xrightarrow{+2} 9^2$
 $4^2 \xrightarrow{+2} 7^2 \xrightarrow{+2} 10^2$

44. (C) STAR, MADAM, MALAYALAM words can be formed.



CRITICAL THINKING

46. (D) From the given conditions it is clear that there are at least 3 animals in the farm. Let us assume that there are 4 animals in the farm, say, 2 hens, 1 cow and 1 pig. Then it opposes the statement that all except 2 animals were cows, because there are more than 2 animals except cows in the farm.

Same is the case when we replace the 2 hens with 2 cows or 2 pigs. Either of the 2 cases would contradict some of the given three conditions.

Even if we consider that there are more than 4 animals then also by considering any number of pigs, hens or cows, one of the statements would be contradicted. Hence the only option left is that there are 3 animals in the farm: 1 cow, 1 hen and 1 pig.

Now all except two animals were cows, which is 1 hen and 1 pig. Same is the case for the other two statements as well. Hence the correct answer is option (D).

47. (D) There are more than 8 alphabets in the given image. The alphabets are I, L, M, N, T, V, W, X, Y, Z.

48. (D) Ball A will keep moving forward.

49. (D)



50. (C) Stand up for the person if it's safe or tell a trusted adult.

Helping someone in need and standing against bullying is the right thing to do. If direct intervention isn't safe, informing a trusted adult can help address the situation.

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The End
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