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UNIFIED COUNCIL OLYMPIADS

UIMO
Unified International Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD

CLASS - 5

Question Paper Code : 4O119

KEY

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A	A	C	D	B	B	D	B	C	A
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
D	C	D	C	B	B	D	B	B	D
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A	A	A	A	B	B	C	C	C	B
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C	B	D	D	A	B	C	D	B	D

EXPLANATIONS

MATHEMATICS

01. (D) Five crore

02. (B) 2 kg 150 g = 2150 g

2.2 kg = 2200 g $\rightarrow$ So: 2150 g < 2200 g = 2.2 kg

03. (D) Total ribbon used for cards = Total ribbon – ribbon used for present – ribbon left

Ribbon for cards = 5 – 1.4 – 2.6 = 1 m

04. (B) Convert ml to ml first (both in ml) : 280 + 880 = 1160 ml

Convert to liters : 1160 ml = 1.16 l

05. (C) $\frac{6-5+4-3+2-1}{12}=\frac{12-9}{12}=\frac{3}{12}=\frac{1}{4}$

06. (B) The digits which are non-prime are 0, 1, 4, 6, 8, 9. However, the units digit of a prime cannot be 0, 4, 6 or 8. Therefore any two-digit primes which have both their digits non-prime have a units digit of 1 or 9. The only such primes are 11, 19, 41, 61 and 89. Hence there five such primes.

07. (A) Compute 123456789 × 8 = 987654312. Compare with 987654321 : digits 1 and 2 are swapped (last two positions). Sum : 1 + 2 = 3.

"The units digit of 123456789 × 8 is 2 , since 9 × 8 = 72. So, the two digits which are in a different order are 1 and 2, whose sum is 3. 123456789 × 8 = 987654312.

08. (A) $\frac{1}{25} + 0.25 = 0.04 + 0.25 = 0.29$

09. (A) $28.5 \times 7 - 27 \times 3 - 29 \times 3 = 31.5\ ^{o}C$

10. (B) $\frac{1}{8}$ is smaller than $\frac{1}{4}$, so it should be closer to 0. But on the number line $\frac{1}{8}$ is shown after $\frac{1}{4}$, which is incorrect.

11. (A) Total cost = Rs. 96

Cost per pencil = Rs. 8

Number of pencils

= Rs. 96 ÷ Rs. 8 = 12 pencils

12. (A) Original per box = 120 ÷ 8 = 15

After adding 3 more to each → 15 + 3 = 18 per box

Total = 8 × 18 = 144

But this says 144. Wait...

Actually, new apples added = 3 × 8 = 24

So total = 120 + 24 = 144 apples

13. (C) 6:45 – 3 hr = 3:45

3:45 – 25 min = 3:20 PM

14. (D) Actual product 456 × 18 = 8208, not 8108

15. (B) 4.5 ÷ 1.5 = 3

16. (B) Days David took to save Rs. 63

Days = 63 ÷ 1.40 = 45 days

Days David's brother has saved

David started 20 days earlier

Brother saved = 45 – 20 = 25 days

Amount saved by brother

25 × 2.20 = 55

17. (D) Total number of cakes and puffs sold in the morning

= 56 + 28 = 84

Total number of cakes and puffs sold in the afternoon

= 14 + 12 = 26

Ratio of the total number of cakes and puffs sold in the morning to the total number of cakes and puffs sold in the afternoon

= 84 : 26

= 42 : 13

18. (B) 2.5 kg = 2500 g → Equal weights

19. (C) 2 pens = Rs. 40, 3 notebooks = Rs.105

Total = Rs.145

Rs. 200 – Rs. 145 = Rs. 55

20. (A) $\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} \times \frac{1}{5} \times x = 2$

x = 240

21. (D) 123123123123 ÷ 123 = 1001001001

10 digits

22. (C) SI = 600 × 5 × 2100 = 60

SI = 100600 × 5 × 2 = Rs. 60

23. (D) Since there are 12 squares initially, then the number of squares to be removed is

$\frac{1}{2} \times \frac{2}{3} \times 12 = \frac{1}{3} \times 12 = 4$

Therefore, there will be 8 squares remaining.

24. (C) 1 dozen = 12 → 3 dozen = 36 mangoes

Total = 36 × 7 = 252

25. (B) 1 hr 20 min + 45 min = 2 hr 5 min

5:15 PM + 2 hr 5 min = 7:20 PM

26. (B) Cost per pen = 50 ÷ 5 = 10

Selling price = 60 ÷ 5 = 12

Profit = 12 – 10 = Rs. 2

27. (D) $0.19 = \frac{19}{100}$

28. (B) HCF (10, 30) = 10

LCM (15, 25) = 75 (lagest)

First common multiple of 9 & 12 = 36

Greatest prime factor of 35 = 7

29. (B) 95310 – 10359 = 84951

30. (D) 50 × 60 = 3000 seconds

31. (A) Spending per day

= Rs. 15 + Rs. 20 = Rs. 35

Saving per day = Rs. 60 – Rs. 35 = Rs. 25

In 9 days = Rs. 25 × 9 = Rs. 225

32. (A) Temperature of bat = 28°C

≈ 30° C (Rounded to the nearest ten)

33. (A) Each piece = 2.5 ÷ 5 = 0.5 m = 50 cm; gave 40 cm

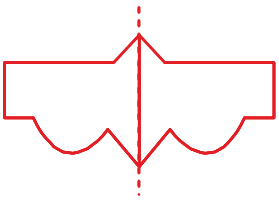
10 cm left + 4 pieces (4 × 50 = 200 cm)

Total left = 210 cm = 2.1 m

34. (A) $12 \times 9 = 108\ cm^2$

$10 \times 7 = 70\ cm^2$

$108 - 70 = 38\ cm^2$

35. (B) 

REASONING

36. (B) 

37. (C) 

38. (C) Bobby ran → slower than car

Irving rode bike → slower than car

Dog → slower than Bobby

39. (C) The sequence of words in a dictionary is pale, pie, pile, pillar, ply alphabetically. PLY comes last in the dictionary.

40. (B) After interchanging the digits,

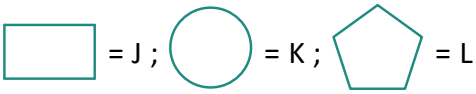
New number = 3867451092

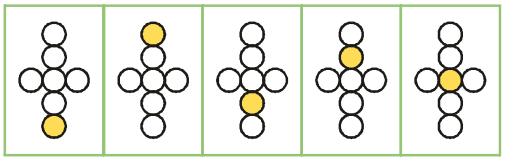
Hence, third digit from the right end = 0

41. (C) 7 – 3 = 4

42 (B) Arrows in same direction (B)

Arrows in opposite direction (A)



43. (D) 

44. (D) Here, the letters given follows a pattern that is:-

D + 4 → H + 4 → L

F + 4 → J + 4 → N

K + 4 → O + 4 → S

But MPU does not follow this pattern

(i.e., M + 3 → P + 5 → U)

Hence, MPU is the answer.

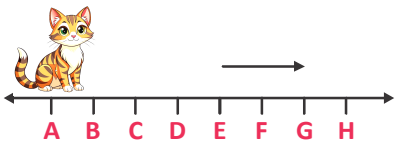
45. (A) 

CRITICAL THINKING

46. (B) Bhanu & Priya face each other → one sleeps on right ear, one on left ear → 1 right ear

Mary & Karan have backs towards each other → one sleeps on right ear, one on left ear → 1 right ear

Total girls with right ear on pillow = 1 + 1 = 2

47. (C) 

5 jumps are required

48. (D) Arjun has 22 pairs of black gloves → 44 black gloves, and 22 pairs of blue gloves → 44 blue gloves.

He wants at least one matching pair (same color).

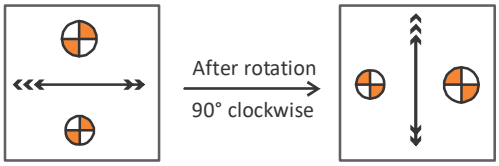
In the worst-case scenario, he could pick all 44 black gloves first → still no blue gloves paired.

The next glove he picks (the 45th glove) will guarantee a matching pair, because it must match either black or blue.

Minimum gloves required = 45

49. (B) Since pencils are blue and some blue things are long, pencils may be long.

50. (D)



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