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UNIFIED COUNCIL OLYMPIADS

UIMO
Unified International Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD

CLASS - 4

Question Paper Code : 4P114

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EXPLANATIONS

MATHEMATICS

01. (D) $\frac{1}{3}+\frac{1}{3}=\frac{2}{3}$

02. (C) Multiply number of balls per bag by total bags. Total = 7 × (3 + 5).

03. (D) Charan's current age is a multiple of 6 between 30 and 70: 36, 42, 48, 54, 60, 66.

Next year's age (A + 1) must be a multiple of 5. Adding 1 to each gives 37, 43, 49, 55, 61, 67. Only 55 is a multiple of 5, so her current age is 54.

In 4 years, her age will be 54 + 4 = 58.

04. (C) Let Harry have x marbles

He gave $\frac{1}{3}$ on the bus and 20 to classmates, leaving $\frac{1}{4}$

$$x=\frac{1}{3}x+20+\frac{1}{4}x$$

$$x-\frac{7}{12}x=20\Rightarrow\frac{5}{12}x=20\Rightarrow x=48$$

05. (C) 1200 + 800 + 500 = 2500

06. (B) The sum of all faces on two dice is 2 × (1 + 2 + 3 + 4 + 5 + 6) = 42. The sum of the visible faces is given as 31, so the sum of the two hidden faces (the bottom faces) is 42 – 31 = 11. The only pair of numbers from 1 to 6 that sums to 11 is (5, 6). The difference between these numbers is 6 – 5 = 1

07. (B) The maximum weight allowed is 8 kg, which is 8000 g. Each book weighs 200 g, so the maximum number of books is 8000 ÷ 200 = 40.

08. (B) $\frac{2}{4}, \frac{2}{8} = \frac{1}{4}, \frac{3}{4}, \frac{4}{6} = \frac{2}{3}$

2 + 4 + 4 +2 = 12

09. (A) Total numbers from 50 to 100 = 51

Multiples of 2 = 26

Multiples of 3 = 17

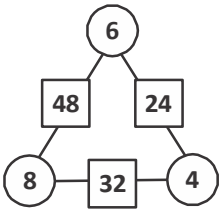
Multiples of both (6) = 8

Numbers removed = 26 + 17 – 8 = 35

Numbers remaining = 51 - 35 = 16

10. (A) The length of the field is (10 – 1) × 2 = 18 m, and the width is (5 – 1) × 2 = 8 m, so the perimeter is 2 × (18 + 8) = 52 m

11. (C)



12. (A) 48

Explanation : LCM of 6, 8, and 12 = 24

13. (B) 1 litre bottle half full = $\frac{1}{2}$ litre

2 litre bottle one-fourth full

$= \frac{1}{4} \times 2 = \frac{1}{2}$ litre

Total water = $\frac{1}{2} + \frac{1}{2}$ = 1 litre

14. (D) A × B = 32 → the digits that make 32 are 4 and 8

Try A = 4, B = 8

B + C = 11 → 8 + C = 11 → C = 3

Check A + C = 7 → 4 + 3 = 7

So, A = 4, B = 8, C = 3

Now multiply A × B × C = 4 × 8 × 3 = 96

15. (C) The marshals are in a straight line in this order: P – Q – R – S

Distance from P to S = 1200 m

Distance from P to R = 800 m

So, distance from R to S

1200 – 800 = 400 m

16. (B) 888.....888 ÷ 111
(12 digits)

= 8008008008

= 8 + 8 + 8 + 8 = 32

17. (C) Square → has 2 pairs of parallel sides

Rhombus → has 2 pairs of parallel sides

Parallelogram → has 2 pairs of parallel sides

Trapezoid → has only 1 pair of parallel sides

18. (C) $\frac{4}{5} \times 100\text{ m} = 4 \times 20 = 80\text{ m}$

19. (C) □ = 6 × 9 × 2

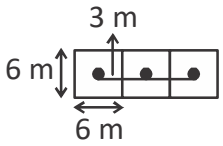
20. (D) Contest starts at noon (12 : 00 pm).

1000 minutes = 16 hours and 40 minutes (1000 ÷ 60 = 16 remainder 40).

Noon + 16 hours = 4:00 am next day.

4 : 00 am + 40 minutes = 4 : 40 am.

21. (A)



4 × 3 cm = 12 cm

22. (B) Arun earns twice Bittu and four times Candy

So, their earnings are in the ratio

Arun : Bittu : Candy = 4 : 2 : 1

Total parts = 4 + 2 + 1 = 7

Total money = Rs. 2800

Value of 1 part = 2800 ÷ 7 = 400

Candy earns 1 part = Rs. 400

23. (D) Given S – 100 = T – 100S – 100

= T – 100S – 100 = T – 100

Add 100 to both sides.

S = T

24. (C) 35 × 37 = 1295

To get 10360, we need 1295 × ? 10360 $\Rightarrow$? = 8

Also, the product ends in 0, so a factor 2 is needed

Since 35 and 37 are odd, ? must be even

25. (C) Amount of milk in 7 packets

= 7 250 ml

= 1750 ml = 1.75 l

26. (C) Apple = 150 g $\rightarrow$ Mango = 450 g $\rightarrow$ Papaya = 900 g $\rightarrow$ C.

27. (C) IC = 99 is Incorrect because I cannot be placed before C.

The correct Roman numeral for 99 is XCIX

28. (D) Increase = $\frac{4}{5}-\frac{2}{5}=\frac{2}{5}$

$\frac{2}{5}$ = 12L

Full = $12\times\left(\frac{5}{2}\right)$ = 30L

29. (A) 36 $\rightarrow$ product digits = 18;

36 ÷ 18 = 2

30 (D) Initial length = 9 cm

Three lies: 3 × 6 = 18 cm increase

Two truths: 2 × 2 = 4 cm decrease

Final length =9 + 18 – 4 = 23 cm

31. (B) Sum of 1st group (1, 4, 6) = 11

Each next group's sum increases by 7

From 1st to 12th group, there are 11 increases

So,

11 + (11 × 7) = 11 + 77 = 88

32. (A) No. of ways = 6

Plate 1	Plate 2	Plate 3
2	2	1
2	1	2
3	1	1
1	3	1
1	2	2
1	1	3

33. (B) 1 million = 1,000,000

900 tens = 9000

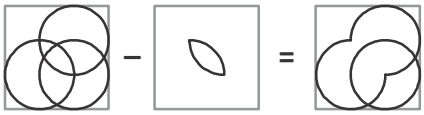
$\therefore$ 1 million – 900 tens = $\begin{array}{r} 1000000 \\ 9000 \\ \hline 991000 \end{array}$

34. (B) No. of flat faces = 4

35. (B) $\frac{3}{4}\times\frac{8}{9}=\frac{2}{3}\ l$

$\frac{2}{3}-\frac{1}{6}=\frac{4-1}{6}=\frac{3}{6}=\frac{1}{2}\ l$

REASONING

36. (B) 

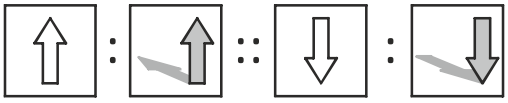
37. (B) C = $, A = @, B = # $\rightarrow$ CAB = $@#

38. (D) Alphabetical order:

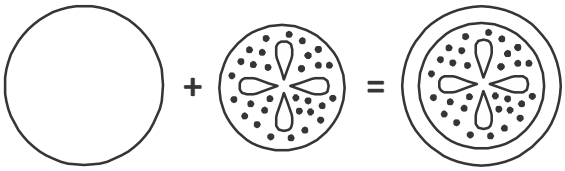
Rabbit $\rightarrow$ Rain $\rightarrow$ River $\rightarrow$ Rope

The word that comes last is Rope

39. (A) 

40. (C) 

41. (C)



42. (A) There will be 5 saturdays and 5 sundays.
Number of holidays = 5 + 5 = 10 days.

The number of working days

= 30 – 10 = 20.

43. (D) (A) I = 9, L = 12

= 9 +12 = 21

(B) S = 19, V = 22

= 19 + 22 = 41

(C) D = 4, G = 7

= 4 + 7 = 11

(D) N = 14, Q = 17

= 14 + 17 = 31

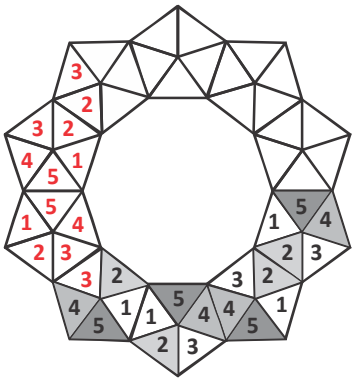
44. (C) No. of triangles =7

No. of squares = 7

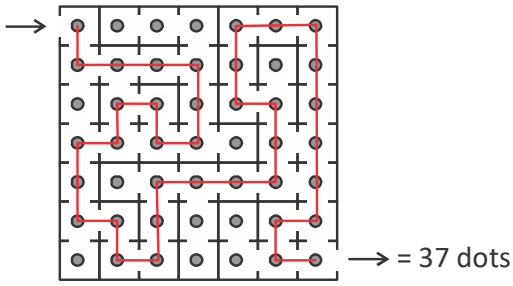
45. (D) Every box contains 3 lines, difference between above horizontal line objects below horizontal line objects is equal to 2.

CRITICAL THINKING

46. (C)



47. (C)



48. (A) 18

First day : (4 guavas)

Second day : (6 guavas)

Third day : (8 guavas)

49. (C) Total weight = 24 kg, so each side = 12 kg.

Left side shows 3 diamonds = 3 clovers, so 1 diamond = 1 clover.

On the right side, after matching equal shapes, the moon equals one shape.

Each shape weighs 2 kg.

Value of the moon = 2

50. Delete

THE END