# UIM
## Unified International Mathematics Olympiad

## UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD

**CLASS - 4**
**Question Paper Code : 4P104**

### KEY

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

### SOLUTIONS

#### MATHEMATICS

01. (D)  $(8 \times 3) \times 4 = 8 \times (4 \times 3)$

Left-hand side: $(8 \times 3) \times 4 = 24 \times 4 = 96$

Right-hand side: $8 \times (4 \times 3) = 8 \times 12 = 96$

This is correct because both sides equal 96.

02. (_)  DELETE

03. (D)  A number is always both a factor and a multiple of itself.

For example:

1 is a factor and multiple of 1

5 is a factor and multiple of 5

7 is a factor and multiple of 7

Since this is true for all numbers, the correct answer is:

(D) All of these.

04. (D) To find the expanded form of 90110, we break it down based on place values:

90000 (Ninety thousand)

0 (Zero in the thousand's place, so no need to write)

100 (One hundred)

10 (Ten)

0 (Zero in the units place, so no need to write)

Thus, the correct expanded form is:

90000 + 0 + 100 + 10 + 0

05. (A) 14 sevenths mean $\dfrac{14}{7} \rightarrow$ simplifies to 2

3 halves means $\dfrac{3}{2}$

Add the numbers $= 2 + \dfrac{3}{2}$

Since 2 can be written as $\dfrac{4}{2}$

(because 2 = 4 ÷ 2), we now add

$\dfrac{4}{2} + \dfrac{3}{2} = \dfrac{4+3}{2} = \dfrac{7}{2}$

06. (C) 99999 + 100000 = 199999

07. (B) Step 1 : Convert Daily Working Hours

Harini works 5 hours 30 minutes per day.

Since 30 minutes = 0.5 hours, her daily working hours are:

5.5 hours

Step 2 : Calculate Weekly Working Hours

A week has 7 days, so:

5.5×7=38.5 hours

Step 3 : Check the Closest Answer

The closest correct answer to 38.5 hours

is $38\dfrac{1}{2}$ hours

08. (C) Observe the pattern,

54 ÷ 9 = 6

504 ÷ 9 = 56 (one 5 in the quotient)

5004 ÷ 9 = 556 (two 5s in the quotient)

50004 ÷ 9 = 5556 (three 5s in the quotient)

500004 ÷ 9 = 55556 (four 5s in the quotient)

5000004 ÷ 9 = 555556 (five 5s in the quotient)

09. (A)
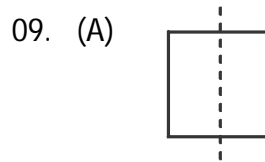


10. (B) If one side 16 cm

$x + 3x + 3 + 2x = 99$ cm

$6x + 3 = 99$ cm

$6x = 99 - 3 \Rightarrow 6x = 96$

$x = 16$

11. (D) Option A : 40 and 50 Prime numbers between 40 and 50 are: 41, 43, 47 (3 prime numbers).

Option B : 50 and 60 Prime numbers between 50 and 60 are: 53, 59 (2 prime numbers).

Option C : 70 and 80 Prime numbers between 70 and 80 are: 71, 73, 79 (3 prime numbers).

Option D : Both (A) and (C) This would be correct since both options A and C have 3 prime numbers.

12. (C) Option A : CDLXIV

CD = 400, L = 50, X = 10, IV = 4

Total = 400 + 50 + 10 + 4 = 464

Option B : DCXLVI

D = 500, C = 100, XL = 40, VI = 6

Total = 500 + 100 + 40 + 6 = 646

Option C : DCLXVI

D = 500, C = 100, L = 50, X = 10, VI = 6

Total = 500 + 100 + 50 + 10 + 6 = 666

Option D : CDLXVI

CD = 400, L = 50, X = 10, VI = 6

Total = 400 + 50 + 10 + 6 = 466

13. (C) A + B = 640 g

C + D = 600 g

A + B + D = 860 g

D = 860 g – 640 g = 220 g

C = 600 g – 220 g = 380 g

14. (A) Since 26394 × 347 = 9158718, we can calculate 2.6394 × 34.76 by dividing 9158718 by 100000.

Thus, 2.6394×34.7=91.587182.

15. (C) 325 – 213 = 112

16. (D) The smallest non-zero multiple of any number is the number itself because any number multiplied by 1 gives the number.

17. (B) From 10th February to 29th February 2012 (a leap year) there are 20 days. Then, from 1st March to 20th March, there are 20 days, making a total of 40 days.

18. (B)



9 cm

A = s² = 81 cm²

P = 36



11 cm

2(l + b) = 36 cm

l + b = 18 cm

b = 18 cm – 11 cm = 7 cm

A = 11 cm × 7 cm = 77 cm²

19. (B)



$= \dfrac{7}{12}$



$= \dfrac{7 \times 2}{12 \times 2} = \dfrac{14}{24}$

20. (C)

 +  +  +  +  = 33

 +  +  +  = 33

20 +  = 33

 = 33 – 20 = 13

 +  +  +  +  +  + 

$\Rightarrow$ 33 +  = 33 + 13 = 46

21. (C) The correct term used for each side of a polygon is Line segment.

A line segment is a part of a line with two endpoints, which is exactly what forms the sides of a polygon.

A ray is a line that starts at a point and extends infinitely in one direction, and a line extends infinitely in both directions, so these do not form the sides of a polygon.

22. (C) The correct answer is (C) They can all be divided by 3. Multiples of 6 are numbers like 6, 12, 18, 24, and so on. Since 6 is divisible by both 2 and 3, all multiples of 6 are divisible by 3.

23. (B) The correct answer is (B) 1 km = 1000 m.

Option (A) : 1 cm = 10 mm (not 1 mm).

Option(C) : 1 m = 100 cm (this is incorrect, as 1 m = 100 cm).

Option (D) : 10 m = 1000 cm (not 100 cm).

24. (A) To find how much 1l 5ml is less than 2l 314ml, we subtract 1l 5ml from 2l 314ml.

1. Start by subtracting the liters:

2l – 1l = 1l

2. Now subtract the milliliters:

314ml – 5ml = 309ml

So, the difference is 1l 309ml.

**25. (A)** To find which fraction is the greatest, we can compare them based on their denominators. When the numerator (the top number) is the same in all fractions, the fraction with the smaller denominator is the greatest because it means the parts are bigger.

$\dfrac{5}{6}$ has the smallest denominator, so it is the largest fraction.

The other fractions have larger denominators, so they are smaller than $\dfrac{5}{6}$.

**26. (B)** $68 \times 24 = 1632$

**27. (A)** Tanish bought 1090 stickers.

He gave 10 stickers to his friend. So, the remaining stickers are

1060 – 10 = 1080 stickers

He gave the remaining 1080 stickers equally to the pupils. Each pupil got 9 stickers.

To find how many pupils got stickers, we divide the total stickers by the number of stickers each pupil got

$\dfrac{1080}{9} = 120$

So, 120 pupils obtained distinction in the test.

**28. (D)** Leela started baking at 17:35 (5:35 PM) and took 3 hours 30 minutes to bake the cakes.

Let's break it down step by step:

1. Add 3 hours to 17:35: 17:35 + 3 hours = 20:35 (8:35 PM)

2. Now, add 30 minutes to 20:35: 20:35 + 30 minutes = 21:05 (9:05 PM)

**29. (A)**



**30. (D)** Charan needs a total of 15 × 35 = 525 notebooks to arrange them in 15 rows with 35 notebooks each. Since he has 517 notebooks, he needs

525 – 517 = 8 more notebooks.

**31. (B)** 31 + 29 + 31 + 30 + 31 + 30 = 182

So, there are 182 days in the first 6 months of a leap year.

**32. (D)** 2 × 3 – 5 = 1

6 – 5 = 1

**33. (C)** To find the distance between the first and the last tree, follow these steps:

There are 100 trees, and the trees are planted 9 meters apart.

The distance between the first tree and the last tree is the total number of spaces between the trees, not the total number of trees.

Since there are 100 trees, there are 99 spaces between them.

Now, multiply the number of spaces by the distance between each tree:

99×9=891 meters

So, the distance between the first and the last tree is 891 meters.

**34. (D)** 1864 + 1429 = 3293

**35. (B)** 7 × 459 = 3213

## REASONING

**36. (C)** The first figures rotate by 90° in the clockwise direction and the figure in option (C) presents the same pattern.

**37. (D)**



| 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 | — 14 |
| 2 + 3 | — 1 |
| 15 + 8 + 9 + 10 + 11 + 12 | — 1 |
| | 16 |

38. (D) The series begins with each division moving to the left side and the each dark fill square changing to a white fill square. The fifth figure repeats the sequence. Hence the missing figure is as in option (D).

39. (C)

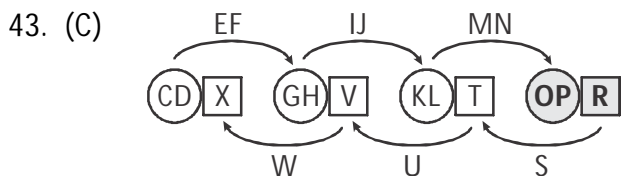| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|----|----|
| D | E | S | T | I | N | A | T | I | O | N |
| 1 | 5 | 19 | 20 | 9 | 14 | 1 | 20 | 9 | 15 | 14 |

I is the 9th letter in the word as well as in the English alphabet.

40. (D) All the figures enclose three symbols, two are similar and another is a different one, except in the figure in option (D) which has no similar figures.

41. (D) Code for 'DRINK' = 6 = no. of letters + 1

Code for 'POLLUTION' = 10
= no. of letters + 1

Similarly, code for GOVERNMENT
= 10 + 1 = 11.

42. (B) $3 \times 3 + 2 \times 2 = 9 + 4 = 13$

$4 \times 4 + 8 \times 8 = 16 + 64 = 80$,

$1 \times 1 + 5 \times 5 = 1 + 25 = 26$.

43. (C)

EF       IJ       MN

CD X   GH V   KL T   **OP** **R**

W       U       S

Hence, 'OPR' completes the given series.

44. (B) The second figure in the first row is the mirror image (horizontal) of the first figure.

Similarly, the mirror image of first figure in the second row is given in option (B).

45. (D) The given numbers are 4, 9, 6 and 11 of which 11 is the only prime number.

## CRITICAL THINKING

46. (C) The letters are the first alphabets with which the counting numbers start. One, Two, Three etc.
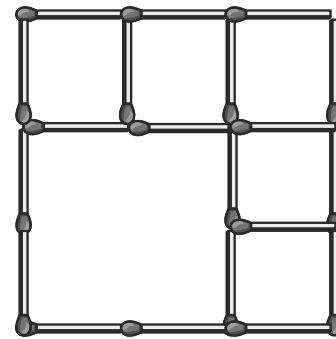
47. (A) "I have one eye" refers to the camera lens.

"See near and far" indicates the ability of a camera to zoom in and out.

"I hold the moments you treasure" means a camera captures and stores memories.

"And the things that make you weep" signifies that a camera captures all moments, both happy and sad.

48. (A) 4 bees and 3 flowers are there in the pond.

49. (B)



50. (B) Being a leader involves not only making decisions but also understanding the needs, concerns, and perspectives of the community members. Listening to other people's ideas allows a leader to gather diverse opinions, make informed decisions that consider various viewpoints and build trust and collaboration within the community.