UIM
Unified International Mathematics Olympiad

UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD (UPDATED)

CLASS - 5
### Question Paper Code : UM9269

KEY

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

EXPLANATIONS

MATHEMATICS

01. (B) X = 120, Y = 60, Z = 240

02. (B) Area of room A = 8 m × 6 m = 48 m^2

Room B = 3 times room A

= 48 m2 × 3 = 144 m^2

Tiles are place in half of room B

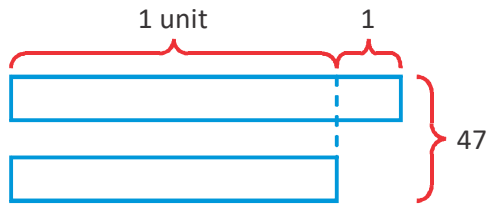Area of room B that is filled with tiles

= 144 m^2 ÷ 2 = 72 m^2

03. (D)
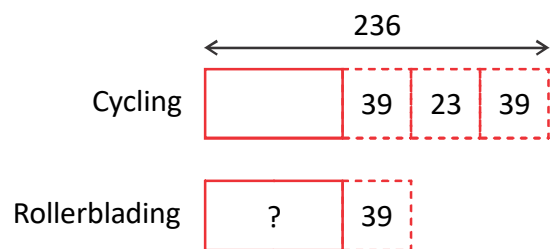
39 + 23 + 39 = 101

236 − 101 = 135

04. (A) The difference between the two numbers is 1

47 − 1 = 46

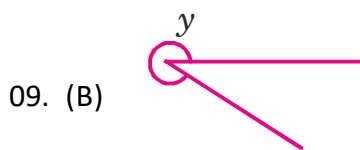2 units have a total of 46.

46 ÷ 2 = 23

The smaller page number is 23

05. (C) 8 h 15 min 33 sec → 8 h 15 min 60 sec

60 sec − 33 sec = 27 sec

06. (B) $72\% = \dfrac{72}{100} = \dfrac{18}{25}$

07. (D) There are 11 cubes

Volume of the given solid

= 11 × 2 cm × 2 cm × 2 cm

= 11 × 8 cm³

= 88 cm³

08. (B) Length of a rectangular swimming pool = 16 m

Breadth = 10 m

Perimeter of the swimming pool = 2(l + b)

= 2(16 + 10) = 2(26 m) = 52 m

09. (B)

10. (C)

11. (B)

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    5 5 6
    6 7 8
 +  2 1 8
 _____
  1 4 5 2
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♠ = 5

♣ = 6

⇒ ♣ + ♠ = 5 + 6 = 11

12. (D) The L.C.M of 6 and 9 is 18

There are 5-numbers = 18, 36, 54, 72 and 90

13. (C) 1 day = 24 hours

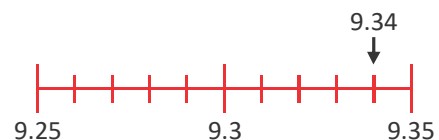1 bananas → 4 hours = $\dfrac{24}{4}$ = 6

So, 6 bananas in 1 day

For 5-days → 5 × 6 = 30 bananas.

14. (B) Product of 1111 × 1111 = 1234321

The largest odd digit in this product is 3.

15. (B) L.C.M of 10 & 24 = 120

G.C.F of 10 & 24 = 2

Sum = 120 + 2 = 122.

16. (D) Since 8760 secs ÷ 60 secs = 146 mins

1 minute → 10 meters

146 mins → 146 × 10 = 1460 meters in 8760 seconds

17. (C) 9.34

Therefore the greatest possible value of the number is 9.34.

18. (C) Fraction of allowance spent

$$= \frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$$

$$1 - \frac{5}{8} = \frac{3}{8}$$

He had $\frac{3}{8}$ of his allowance left.

19. (B) Total volume of water in 4 cups

$= 0.36 \times 4 = 1.44 \, l$

$3.56 - 1.44 = 2.12 \, l$

$2.12 \, l$ of water is left in the jug.

20. (D) 38,65,62,048

The digit in ten thousands place is 6 > 5

So, 38,65,62,048 rounded to the nearest lakhs is 38,66,00,000

21. (D) $1 \times 3 \times 5 \times 7 \times 9$ and $2 \times 4 \times 6 \times 8 \times 10$

945   and   3840

Factors of 945 = ①, ③, ⑤, 7, 9,

⑮, 21, 27, 35, 45, 63, 105, 135, 189,

315 and 945

Factors of 3840 = ①, 2, ③, 4, ⑤,

6, 8, 10, 12, ⑮, 16, 20, 24, 30, 32, 40,

48, 60, 64, 80, 96, 120, 128, 160, 192,

240, 256, 320 ....

Common factors are 1, 3, 5 and 15

G.C.F is 15.

22. (A) (A) 14308 ÷ 4 = 3577 = 4000   (✔)

(B) 3499 + 1001 = 4500 = 5000 (✗)

(C) 767 × 6 = 4602 = 5000   (✗)

(D) 3000 + 499 = 3499 = 3000   (✗)

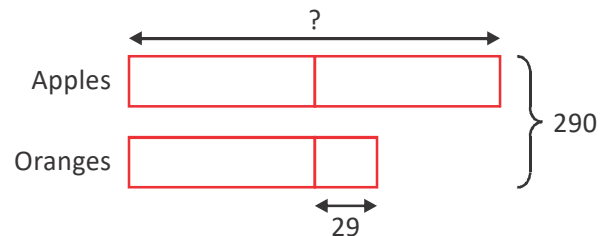**23. (B)** 2 tens 4 hundredths 7 thousandths

= 20.047

Rounding off nearest to 2 decimal places
20.047 = 20.05

24. (C) 4 ten thousands 6 thousands 1 hundred 2 ones = 46102

Therefore, 10000 less than 4 ten thousands 6 thousands 1 hundred ones

= 46102 − 10000 = 36102.

25. (D) 174

3 units → 290 − 29 = 261 fruits

1 unit → 261 ÷ 3 = 87 fruits

2 units → 2 × 87 = 174 fruits

The fruit seller had 174 apples at first

26. (B) Profit = S.P − C.P = 900 − 600 = ₹300

$$\text{Profit\%} = \left(\frac{\text{Profit} \times 100}{\text{C.P}} \right) \%$$

$$= \left(\frac{300}{600} \times 100 \right) \% = 50\%$$

27. (A) AC + CE + EG

AC = AB + BC = 3 cm + 3 cm = 6 cm

CE = CD + DE = 3 cm + 3 cm = 6 cm

EG = EF + FG = 3 cm + 3 cm = 6 cm

6 cm + 6 cm + 6 cm = 18 cm

28. (D) Total mixture = 65 ml + 0.835 l = 0.065 l + 0.835 l = 0.900 l = 0. 9 l

Capacity of a cup = 0.09 l

∴ No. of cups needed = $\dfrac{0.9 \, l}{0.09 \, l}$ = 10

29. (B) No. of squares shaded = 6

Total number of squares = 18

∴ Their ratio = 6 : 18 = 1 : 3

30. (A) Time he takes if he cycles

= 32 ÷ 2 = 16 min

15:44 = 3:44 pm

16 min

3:28 pm   3:44 pm
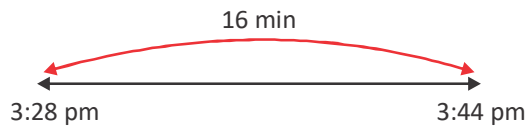
He leaves has work place at 3:28 pm.

31. (C) 41574 − 500 = 41074

41574 + 500 = 42074

32. (A) 7.7 − 1 = 6.7 cm

6.7 cm = 7 cm

33. (D) We see the digit in tens place to round off nearest hundred in option (D) 29999 in ten's place is 9 we round the multiple of hundred which is greater than the numbers. Hence 29999 is near to 30000

34. (C) $4 \times 5 : 5 \times 5 = 20 : 25$

35. (C) Sum of the 3 numbers A, B and C = 3 × 25

= 75

A = B − 2

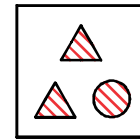C = B + 2

A + B + C = B − 2 + B + B + 2

3B = 75

B = 75 ÷ 3

= 25

REASONING

36. (D)

$$\underbrace{5, 11, 20, 26, 35, 41, 50, 56, 65, 71, 80, 86, 95, 101}$$

+6 +9 +6 +9 +6 +9 +6 +9 +6 +9 +6 +9 +6

37. (A) Except option 'A' , remaining options three different shapes.

38. (D) **WOLLEY**

39. (A) There are four squares.

There are twelve triangles.

12 − 4 = 8

40. (A) In the given group there is one green shape, one white and two orange colour shapes.

41. (B) Here, the positional values of the letters (in English, alphabetical order) are added to obtain the number.
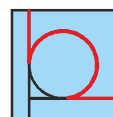
As, AMIR = 1 + 13 + 9 + 18 = 41

SACHIN = 19 + 1 + 3 + 8 + 9 + 14 = 54

Similarly, ROHIT 18 + 15 + 8 + 9 + 20 = 70

So, the jersey number of Rohit will be 70

42. (C)

43. (B) $\dfrac{36}{2} - 12 + 3 \times 6 = 24$

18 − 12 + 18 = 24

44. (D)

45. (B) The letters t, h, u, r are used twice, the letter 'e' three times, and the letter 'o' four times. Six letters are used more than once.

CRITICAL THINKING

46. (D) Charan got as many red apples as lasya got green apples.

47. (C) Day → Work → Exhaust → Night → Sleep

    As when the day starts one does work for the whole day and due to work one gets exhausted. Then after day night comes and one goes to sleep to get relief from exhaustion.
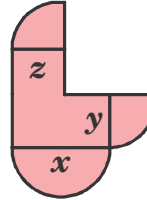
48. (B)
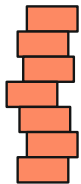
49. (B) The lock combinations are :

    0 7 8 2   1 8 9 3   2 9 0 4

    3 0 1 5   4 1 2 6   5 2 3 7

    6 3 4 8   7 4 5 9   8 5 6 0

    9 6 7 1

50. (A)

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