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OLYMPIADS

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UNIFIED CYBER OLYMPIAD (UPDATED)

CLASS - 8
Question Paper Code : 3O109

KEY

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

SOLUTIONS

MENTAL ABILITY

01. (D) The given expression is the sum of 13 odd numbers.

So, the required value is $13^2 = 169$.

02. (B) Let the number to subtracted from $\frac{7}{-8}$ be x.

Then $\frac{7}{-8} - x = \frac{-13}{12}$ (Given)

$\Rightarrow x = \frac{-7}{8} + \frac{13}{12} = \frac{5}{24}$

03. (A) Let the one number be x.

Other number $= \frac{x}{2}$

According to the question,

$x \times \frac{x}{2} = 392 \Rightarrow \frac{x^2}{2} = 392 \Rightarrow x^2 = 784$

$\Rightarrow x = \sqrt{784} = 28 \therefore \frac{x}{2} = \frac{28}{2} = 14$

Hence, required sum = 14 + 28 = 42

04. (C) $(2x + 3)(4x^2 - 6x + 9)$

$= 2x(4x^2 - 6x + 9) + 3(4x^2 - 6x + 9)$

$= 8x^3 - 12x^2 + 18x + 12x^2 - 18x + 27$

$= (8x^3 + 27)$

05. (B) Let the number be x.

According to the given problem,

$4x + 10 = 5x - 5 \Rightarrow x = 15$

06. (D) There are 5 composite numbers in the numbers from 1 to 10

$\Rightarrow$ The required probability = $\dfrac{5}{10}$ = $\dfrac{1}{2}$.

07. (D) Since, $\left(\dfrac{6}{11}\right)^{4x} \div \left(\dfrac{6}{11}\right)^{12} = \left(\dfrac{36}{121}\right)^{2}$

$\Rightarrow \left(\dfrac{6}{11}\right)^{4x-12} \left(\left(\dfrac{6}{11}\right)^{2}\right)^{2}$

$\Rightarrow \left(\dfrac{6}{11}\right)^{4x-12} = \left(\dfrac{6}{11}\right)^{4}$

On comparing the powers. we get

$4x - 12 = 4$

$\Rightarrow \quad 4x = 16$

$\Rightarrow \quad x = 4$

08. (D) Given sides ratio = $\dfrac{1}{2} : \dfrac{1}{3} : \dfrac{1}{4}$

$= \dfrac{1}{2} \times 12^{6} : \dfrac{1}{3} \times 12^{4} : \dfrac{1}{4} \times 12^{3}$

[$\because$ LCM of 2, 3 & 4 = 12]

= 6 : 4 : 3

$\therefore \quad 6x + 4x + 3x = 52$ cm

$\therefore \quad 13x = 52$ cm

$x = \dfrac{52}{13}$ cm = 4 cm

$x = 4$ cm

$\therefore \quad 3x = 3 \times 4$ cm = 12 cm

09. (D) Volume of the cuboid = 180 cm³

From the figure, volume is

(p + 3) (9) (4)

$\Rightarrow 36(p + 3) = 180$

$\Rightarrow p + 3 = 5$

$\Rightarrow p = 2$

10. (C) Edge of the cube = 15 cm

$\Rightarrow$ Its volume = 15³ cm³

= 3375 cm³

11. (B) Let the time be 'n' years. Then,

$800 \times \left(1 + \dfrac{5}{100}\right)^{2n} = 926.10$

or $\left(1 + \dfrac{5}{100}\right)^{2n} = \dfrac{9261}{8000}$

or $\left(1 + \dfrac{1}{20}\right)^{2n} = \left(\dfrac{21}{20}\right)^{3}$

$\left(\dfrac{21}{20}\right)^{2n} = \left(\dfrac{21}{20}\right)^{3}$

or 2n = 3 or n = $\dfrac{3}{2}$

$\therefore \quad$ n = $1\dfrac{1}{2}$ years

12. (B) $\dfrac{(0.04)^{3} - (0.03)^{3}}{(0.04)^{2} + 0.04 \times 0.03 + (0.03)^{2}}$

a³ − b³ = (a − b)(a² + ab + b²)

$\dfrac{(0.04 - 0.03)\left((0.04)^{2} + 0.04 \times 0.03 + (0.03)^{2}\right)}{(0.04)^{2} + 0.04 \times 0.03 + (0.03)^{2}}$

= 0.01

13. (A) $3x^{2} + 2\sqrt{3}x - 35$

$= 3x^{2} + 7\sqrt{3}x - 7\sqrt{3}x - 5\sqrt{3}x - 35$

$= \sqrt{3}x\left(\sqrt{3}x + 7\right) - 5\left(\sqrt{3}x + 7\right)$

$3x^{2} + 2\sqrt{3}x - 35 = \left(\sqrt{3}x + 7\right)\left(\sqrt{3}x - 5\right)$

14. (B) 2³ + 24³ = 8 + 13824 = 13832

17³ + 21³ = 4913 + 9261 = 14174

18³ + 20³ = 5832 + 8000 = 13,832

$\therefore \quad$ 2³ + 24³ = 18³ + 20³

15. (B) Sum of all edges of a cuboid = 4(l + b + h)
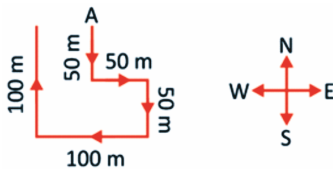
= 4(10 + 8 + 7) cm

= 4 × 25 cm

= 100 cm

REASONING

16. (B) Except in option (B), in all other groups there is a gap of one letter between the last two letters.

X W U ; Q P M ; K J H ; D C A
(with V over XW, ON over QP, I over KJ, B over DC arcs)

17. (D) The rule of the respective movements of the letters is opposite letters of alphabets.

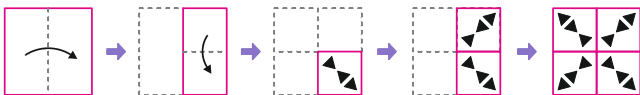**18. (C)** ○ (circle) are moving 1 side CW, while ⌒ are moving 1 side ACW and inverted.

19. (B) As Irfan faces towards East and he walks turning to his right, therefore, he starts to walk in the direction of South. His movements are as follows :

Hence, he will be in the direction of West from his starting point.

20. (B) Set - I = 9 + 5 − (2 + 4) = 8

Set - II = 7 + 6 − (3 + 8) = 2
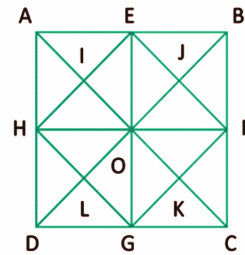
Set - III = 9 + 5 − (1 + 3) = **10**

21. (C)

22. (B)

23. (B) From the figure, it is clear that numbers 3, 6, 2 and 5 are on the adjacent faces of number 1 and number 4 is opposite to it. Now comparing the figure (3) of the dice with the others, we observe that number 3 will replace (X).

24. (D) The figure may be labelled as shown.

Squares :

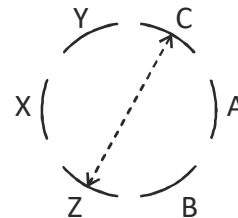The squares composed of 2 HIOL, IEJO, JFKO and KGLO = 4

The squares composed of 4 AEOH, EBFO, OFGC and HOGD = 4

Square composed of 8 = EFGH = 1

Square composed of 16 = ABCD = 1

Total number of squares = 10

25. (D) Hundred - Thousand - Million - Billion - Trillion

26. (D) CALCULATOR

27. (B) The given pattern can be defined as ABCCDD.

28. (B) According to the given instructions, the seating arrangement can be done as shown.

∴ C is sitting opposite to Z.

29. (B) The hexagons in 1st and 2nd columns are overlapped and the overlapped part of lines inside the hexagon are disappeared, forming the hexagons in the 3rd column.

30. (C) The figure that resembles the folded form of the given sheet is option (C).

COMPUTERS

31. **(B)** Classic Tween is the feature in Adobe Flash primarily used for motion tweening, which involves creating smooth transitions between keyframes. To animate the ball moving from left to right, you would place the ball object at the starting position on the first keyframe and then move it to the desired ending position on another keyframe. By applying a Classic Tween between these keyframes, Flash automatically generates the intermediate frames to create a smooth animation of the ball moving across the screen.

Option (A) Motion Editor panel is used to fine-tune and adjust motion tween properties after they have been created, but it is not used to initially create motion tweens.

Option (C) Shape Tween is used for morphing shapes, not for motion tweening objects across the screen.

Option (D) Frame-by-frame animation involves creating each frame manually, which would be time-consuming and unnecessary for a simple left-to-right motion.

Therefore, option (B) Classic Tween is the most appropriate tool for creating the animation described in the question.

32. **(D)** There is no HTML tag named <paragraph>. The correct tag for creating paragraphs in HTML is <p>.

33. **(B)** This program uses a FOR...NEXT loop to iterate through the numbers from 1 to 10. It prints only the even numbers using the IF statement.

34. **(B)** The correct answer is (B) A1. When a cell reference is preceded by the $ symbol (e.g., A1), it becomes an absolute reference, which means it does not change when copied to other cells. The dollar signs lock both the column and row references, making the reference absolute.

Options (A), (C) and (D) do not contain absolute references, so they will change when copied to other cells.

35. **(B)** Creating fake accounts to impersonate others on social media is unethical behavior and can lead to identity theft, harassment, and misuse of personal information.

36. **(A)** The image likely represents a device equipped with a voice-controlled assistant such as Amazon Alexa or Google Assistant, which allows users to perform tasks using voice commands.

37. **(A)** Blu-ray is an optical disc format like CD and DVD. Blu-ray discs can hold more information than other optical media, because of the blue lasers that the disc drives use. A single Blu-ray disc can hold up to 25GB of data. Dual-layer Blu-ray discs will be able to store 50GB of data — equivalent to four hours of HD content.

38. **(C)**

(A) A Table is where data is stored in rows and columns. It acts as the foundational structure of a database but is not primarily used for user-friendly interaction or editing data directly in most cases.

(B) A Query is used to retrieve, filter, and analyze data from one or more tables. It is primarily for extracting specific information rather than entering or modifying data.

(C) A Form provides a graphical interface for users to enter, view, and modify data in the database. It simplifies interaction with the database and makes it user-friendly.

(D) A Report is used for formatting and presenting data in a structured and printable format. It is designed for summarizing and displaying data, not for entering or editing it.

39. (B) Boot sector viruses commonly spread through infected USB drives. When an infected drive is connected to a computer, the virus can transfer to the system's boot sector during the booting process.

40. (D) The participating computers in a network are referred to as nodes.

41. (D) The correct answer is (D) Slide Master View. In this view, you can make global changes to the design and layout of all slides in your presentation.

42. (C) Background images are used to add texture and interesting color to a Web page.

43. (A) Netiquette is a combination of the words network and etiquette and is defined as a set of rules for acceptable online behavior.

44. (D) The Motherboard is the main circuit board of a personal computer that provides the physical and electrical connections between various hardware components such as the CPU, RAM, GPU, storage devices, and peripherals. It serves as the backbone of the computer system, facilitating communication and data exchange between components.

45. (B) Information stealer is a malware variant that is designed to steal critical/ sensitive information, such as login credentials, personal identification details, financial information, and other confidential data, from the victim's systems.

ENGLISH

46. (A)
47. (D)
48. (B)
49. (D)
50. (C)

The End