



UNIFIED CYBER OLYMPIAD (UPDATED)

CLASS - 08
Question Paper Code : 3B107

KEY

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

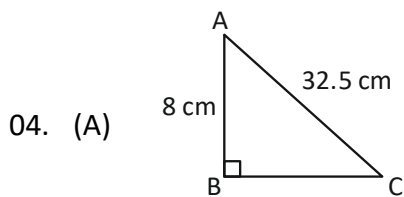
SOLUTIONS

MENTAL ABILITY

01. (B) $1 + 2 + 3 + 4 - 5 - 6 - 7 - 8 = -16$
 $9 + 10 + 11 + 12 - 13 - 14 - 15 - 16 = -16$
 $\therefore (1 + 2 + 3 + 4 - 5 - 6 - 7 - 8) + (9 + 10 + 11 + 12 - 13 - 14 - 15 - 16) + \dots + (2017 + 2018 + 2019 + 2020 - 2021 - 2022 - 2023 - 2024) + 2025 + 2026$
 $\xrightarrow{253 \text{ sixteens}} (-16) + (-16) + \dots + (-16) + 2025 + 2026$
 $= -4048 + 4051$
 $= 3$
02. (D) $\sqrt{0} = \sqrt{0 \times 0} = 0$
 $\sqrt{9} = \sqrt{3 \times 3} = 3$

- $\sqrt{1} = \sqrt{1 \times 1} = 1$
 But 3 can't be written as product of two equal rational numbers.
 $\therefore \sqrt{3}$ is an irrational number.
03. (C) Given $(2^4)^{(x^2+3x-1)} = (2^3)^{(x^2+3x+2)}$
 $2^{(4x^2+12x-4)} = 2^{(3x^2+9x+6)}$
 $\therefore 4x^2 + 12x - 4 = 3x^2 + 9x + 6$
 $4x^2 - 3x^2 + 12x - 9x - 4 - 6 = 0$
 $x^2 + 3x - 10 = 0$
 $x^2 + 5x - 2x - 10 = 0$
 $x(x + 5) - 2(x + 5) = 0$
 $(x + 5)(x - 2) = 0$

$$\begin{aligned} \therefore x + 5 &= 0 \text{ (or) } x - 2 = 0 \\ x &= -5 \text{ (or) } x = 2 \\ \text{sum of both values of } x &= -5 + 2 = -3 \end{aligned}$$



In $\triangle ABC$, $\angle B = 90^\circ$

$$\begin{aligned} \therefore AC^2 &= AB^2 + BC^2 \\ (32.5)^2 &= 8^2 + BC^2 \\ 1056.25 &= 64 + BC^2 \\ BC^2 &= 1056.25 - 64 \\ BC &= \sqrt{992.25} \\ BC &= 31.5 \text{ cm} \\ \text{Area of } \triangle ABC &= \frac{1}{2} \times AB \times BC \\ &= \frac{1}{2} \times 8 \text{ cm} \times 31.5 \text{ cm} \\ &= 126 \text{ cm}^2 \end{aligned}$$

05. (D)

$$\begin{aligned} \sqrt[3]{49} \times \sqrt[3]{-56} &= \sqrt[3]{49 \times -56} \\ &= \sqrt[3]{7 \times 7 \times 7 \times (-2)(-2)(-2)} \\ &= 7 \times -2 \\ &= -14 \end{aligned}$$

06. (B)

$$\begin{aligned} &\sqrt{113^2 + 32.5^2 - 112^2 - 31.5^2} \\ &= \sqrt{113^2 - 112^2 + 32.5^2 - 31.5^2} \\ &= \sqrt{(113 + 112)(113 - 112) + (32.5 + 31.5)(32.5 - 31.5)} \\ &= \sqrt{225 + 64} \\ &= \sqrt{289} = 17 \end{aligned}$$

07. (D)

$$\begin{aligned} (3x + 4y)(9x^2 - 12xy + 16y^2) &= 3x(9x^2 - 12xy + 16y^2) + 4y(9x^2 - 12xy + 16y^2) \\ &= 27x^3 - 36x^2y + 48xy^2 + 36x^2y - 48xy^2 + 64y^3 \\ &= 27x^3 + 64y^3 \\ (3x - 4y)(9x^2 + 12xy + 16y^2) &= \\ &= 27x^3 + 36x^2y + 48xy^2 - 36x^2y - 48xy^2 - 64y^3 \end{aligned}$$

$$\begin{aligned} &= 27x^3 - 64y^3 \\ \therefore (3x + 4y)(9x^2 - 12xy + 16y^2) - (3x - 4y)(9x^2 + 12xy + 16y^2) &= (27x^3 + 64y^3) \\ &= (27x^3 - 64y^3) = \cancel{27x^3} + 64y^3 - \cancel{27x^3} \\ &+ 64y^3 = 128y^3 \end{aligned}$$

08. (B)

$$\begin{aligned} x^2 - 3\sqrt{3}x - 30 &= x^2 - 5\sqrt{3}x + 2\sqrt{3}x - 30 \\ &= x(x - 5\sqrt{3}) + 2(x - 5\sqrt{3}) \\ &= (x - 5\sqrt{3})(x + 2\sqrt{3}) \end{aligned}$$

$\therefore (x + 2\sqrt{3})$ is a factor of $(x^2 - 3\sqrt{3}x - 30)$

09. (A)

$$\begin{aligned} \text{MP} &= \text{SP} + \text{discount} \\ &= ₹ 1175 + ₹ 75 \\ &= ₹ 1250 \end{aligned}$$

$$\text{Discount \%} = \frac{\text{Discount}}{\text{MP}} \times 100$$

$$= \frac{₹ 75}{₹ 1250} \times 100 = 6\%$$

10. (A) Let the principal be ₹ x

$$\therefore A = p \left(1 + \frac{r}{100} \right)^n = p \left(100^1 + \frac{8}{100} \right)^2$$

$$\therefore ₹ 87,480 = p \left(1 + \frac{8^2}{100 \cdot 25} \right)^2$$

$$= p \left(\frac{27}{25} \right) \left(\frac{27}{25} \right)$$

$$\therefore p = ₹ \cancel{87,480}^{240} \times \frac{25}{27} \times \frac{25}{27}$$

$$p = ₹ 75,000$$

11. (B)

$$\frac{a + 2\sqrt{ab} + b}{a - b} = \frac{(\sqrt{a})^2 + 2\sqrt{a} \times \sqrt{b} + (\sqrt{b})^2}{(\sqrt{a})^2 - (\sqrt{b})^2}$$

$$= \frac{(\sqrt{a} + \sqrt{b})^2}{(\sqrt{a} - \sqrt{b})(\sqrt{a} + \sqrt{b})}$$

$$= \frac{(\sqrt{a} + \sqrt{b})(\sqrt{a} + \sqrt{b})}{(\sqrt{a} - \sqrt{b})(\sqrt{a} + \sqrt{b})}$$

12. (B) Given the numbers ratio = 5 : 3 = 5x : 3x
Given 5x + 10 : 3x + 10 = 7 : 5

∴ Product of extremes is equal to product of means

$$\therefore 5(5x + 10) = 7(3x + 10)$$

$$25x + 50 = 21x + 70$$

$$25x - 21x = 70 - 50$$

$$4x = 20$$

$$x = \frac{20}{4} = 5$$

∴ Both numbers are 5 × 5, 5 × 3

∴ Sum of original numbers = 25 + 15 = 40

13. (C) $CP = SP \times \frac{100}{(100 - l)}$

$$= ₹ 1728 \times \frac{100}{(100 - 4)}$$

$$CV = ₹ 1728 \times \frac{100}{96} = ₹ 1800$$

$$= ₹ 1800$$

$$\text{New SP} = \frac{CP(100 + \text{gain}\%)}{100}$$

$$= ₹ 1800 \times \frac{107.5}{100} = ₹ 1935$$

$$= ₹ 18 \times 107.5$$

$$= ₹ 1935$$

14. (B) Area of four walls = 2h(l + b)

$$= 2 \times 12.5 \text{ m} (50 \text{ m} + 40 \text{ m})$$

$$= 25 \text{ m} \times 90 \text{ m}$$

$$= 2250 \text{ m}^2$$

Total cost of white washing

$$= 2250 \text{ m}^2 \times \frac{₹17.5}{1 \text{ m}^2}$$

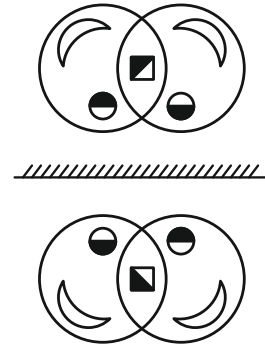
$$= ₹ 39,375$$

15. (A) ABCD is a rhombus $\Rightarrow \angle A = \angle C$
But given $\angle A = 90^\circ \Rightarrow \angle C = 90^\circ$
In a rhombus ABCD, $\angle A + \angle B = 180^\circ$
 $90^\circ + \angle B = 180^\circ$
 $\angle B = 180^\circ - 90^\circ$
 $\angle B = 90^\circ \Rightarrow \angle D = 90^\circ$

∴ ABCD is a square [\because All sides are equal & $\angle A = \angle B = \angle C = \angle D = 90^\circ$]

REASONING

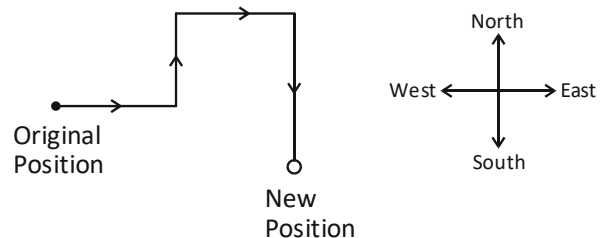
16. (A)



17. (C) Stain, Less

18. (D) Arrow represent one letter and the circles, lines inside the arrow represent one letter.

19. (A) South



20. (C) efg h e eff g ghhe e eff f gggh h h

21. (C) Clap especially is the correct answer because apes is hidden between clap and especially.

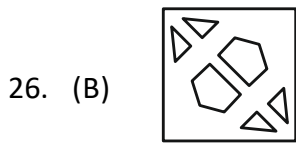
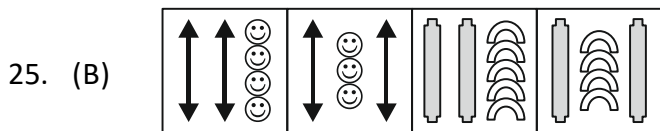
22. (D) Divide each number in the corner by 2 and add to obtain the number in the centre.

23. (B) (A) NAUSEA ; (C) NAUGHT ; (D) NARROW

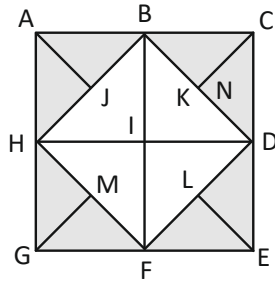
24. (A) Each term is decreasing by a consecutive number.

$$100 - 10 = 90, 90 - 9 = 81, 81 - 8 = 73.$$

Following this pattern, $73 - 7 = 66.$



27. (A) The triangles are : AHJ, ABJ, BKC, CKD, DLE, EFL, FGM, GHM, HIB, BID, DIF, HIF.



ABH, BCD, DEF, GHF, HBD, BDF, HDF, HBF
Total = 20

28. (D) Ocean, river is the correct answer because the other three words are all types of boat, or craft, and ocean and river are types of water you could go on in such a craft.
29. (C) The cube has 6 faces, one face of the cube is adjacent to 4 faces, so we can only colour two faces (opp) with same colour in a cube, we have 3 pairs of opposite. So for the given conditions, the minimum number of colours required to paint is 3.
30. (C) The box increases by one and moves by one box in anticlockwise direction.

COMPUTERS

31. (B) <marquee> is used for animating the text or images by scrolling them horizontally across the screens.
32. (C) The Timeline panel in Adobe Flash allows users to create motion tweens for animations. Users can create motion tweens by defining keyframes and specifying changes in object properties over time, such as position, scale, rotation and transparency.

33. (C) Microsoft Office is a suite of productivity software applications, including Word, Excel, and PowerPoint, but it is not an operating system. Operating systems include Windows, Android, macOS, Linux and others.
34. (B) The DO...LOOP structure in QBASIC repeats a block of code until a specified condition is met. The loop continues executing the code inside it until the condition after the LOOP keyword evaluates to true.
35. (A) The heading elements are H1, H2, H3, H4, H5 and H6 with H1 being the highest (or most important) level and H6 the least.
36. (D) Ask your parent or guardian first and have them go with you.
37. (A) The correct answer is Records. Key Points. Records. A single entry in a table is called a Tuple or Record or Row. A tuple in a table represents a set of related data
38. (C) Backup and Restore (Windows 7) is a built-in tool in Windows 10 that allows you to create backups of files and folders. It enables you to schedule regular backups and restore your files from a backup if needed.
39. (C) A Trojan horse is an example of malicious code disguised as legitimate software or files to trick users into executing it, thereby allowing attackers to gain unauthorized access to a computer system or steal sensitive information.
40. (D) A URL (Uniform Resource Locator) is used to provide the address for locating resources such as web pages on the World Wide Web. It specifies the protocol used to access the resource (e.g., HTTP or HTTPS), the domain name or IP address of the server hosting the resource, and the path to the specific resource on the server.

41. (A) Mixed referencing in Excel is a combination of absolute and relative referencing. It allows you to lock either the column or row reference while allowing the other to change when the formula is copied.
42. (B) In a computer network, the term "medium" refers to the physical pathway through which data travels between devices. This pathway can include wired mediums such as Ethernet cables or fiber optic cables, as well as wireless mediums such as radio waves or infrared signals.
43. (A) Baud rate refers to the speed of data transmission in bits per second (bps) between a modem and another device. It represents the number of signal changes per second and determines the data transfer rate.
44. (D) The Graphics Processing Unit (GPU) is responsible for rendering and processing visual data to produce images that can be displayed on a monitor. It specializes in handling graphics-intensive tasks such as gaming, video playback, and graphical user interfaces.
45. (A) The correct answer is (A) Slide Sorter View. In this view, you can see thumbnail images of all your slides and rearrange their order by dragging and dropping them.
- ENGLISH**
46. (B) 'Promescuos' is an incorrect spelling. The correct spelling is 'Promiscuos'.
47. (B) 'from hand to mouth' can correctly replace the underlined in the given sentence.
48. (C) 'certainly' can be used to correctly replace the underlined in that sentence, as per the context.
49. (D) The synonym of wrath is anger.
50. (D) continue

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The End
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