



**UNIFIED CYBER OLYMPIAD (UPDATED)**

**CLASS - 8**  
**Question Paper Code : UC394**

**KEY**

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

**SOLUTIONS**

**MENTAL ABILITY**

01. (C) Option (C) is neither terminating nor repeating.

∴ Option (C) is an irrational number.

02. (B)

$$\begin{array}{r}
 x^2 + 2x - 3 \\
 x^2 - 2x + 3 \quad \left| \begin{array}{l} x^4 + 0x^3 - 4x^2 + 13x - 4 \\ x^4 - 2x^3 + 3x^2 \\ \hline (-) \quad (+) \quad (-) \\ 2x^3 - 7x^2 + 13x - 4 \\ 2x^3 - 4x^2 + 6x \\ \hline (-) \quad (+) \quad (-) \\ -3x^2 + 7x - 4 \\ -3x^2 + 7x - 4 \\ \hline (+) \quad (-) \quad (+) \\ x + 5 \end{array} \right.
 \end{array}$$

∴ The remainder =  $(x + 5)$

$$\begin{aligned}
 03. (D) \quad \sqrt{5}x^2 - 8x + 3\sqrt{5} &= \sqrt{5}x^2 - 5x - 3x + 3\sqrt{5} \\
 &= \sqrt{5}x(x - \sqrt{5}) - 3(x - \sqrt{5}) \\
 &= (x - \sqrt{5})(\sqrt{5}x - 3)
 \end{aligned}$$

$$\begin{aligned}
 04. (A) \quad SP &= \frac{CP(100 + g)}{100} = \frac{\cancel{₹}250^5 (100 + 8)}{100_2} \\
 &= \cancel{₹}5 \times \frac{108^{54}}{\cancel{2}} \\
 &= ₹ 270
 \end{aligned}$$

$$\text{Discount} = \text{MP} - \text{SP} = ₹ 300 - ₹ 270 = ₹ 30$$

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

$$= \frac{₹ 30}{300} \times 100 = 10\%$$

05. (A)  $\text{SP of rice bag} = \frac{\text{CP}(100 + g)}{100}$

$$₹ 1440 = \frac{\text{CP} \times (100 + 20)}{100}$$

$$₹ 1440 = \text{CP} \times \frac{120}{100}$$

$$\therefore \text{CP} = ₹ 1440 \times \frac{10}{120}$$

$$\therefore \text{CP of rice bag} = ₹ 1200$$

06. (C)  $\text{Compound interest} = P \left(1 + \frac{r}{100}\right)^n - P$

$$= P \left(1 + \frac{4}{100}\right)^2 - P$$

$$= P \left(\frac{25 + 1}{25}\right)^2 - P$$

$$= P \left(\frac{26}{25} \times \frac{26}{25}\right) - P$$

$$= \frac{676P - 625P}{625}$$

$$= \frac{51P}{625}$$

$$\text{SI} = \frac{\text{PTR}}{100} = \frac{P \times 2 \times 4}{100} = \frac{2P}{25}$$

$$\text{Given CI} - \text{SI} = ₹ 123$$

$$\therefore \frac{51P}{625} - \frac{2P}{25} = ₹ 123$$

$$\therefore \frac{51P - 50P}{625} = ₹ 123$$

$$P = ₹ 123 \times 625$$

$$\therefore \text{Principal} = ₹ 76,875$$

07. (B)

$$\frac{(3^2)^n \times 3^2 \times \left(3^{\frac{-n}{2} \times 2}\right) - (3^3)^n}{3^{3m} \times 3^2 \times 2^3} = 81$$

$$\Rightarrow \frac{3^{2n} \times 9 \times 3^n - 3^{3n}}{3^{3m+2} \times 8} = 81$$

$$\frac{3^{2n+n} \times 9 - 3^{3n}}{3^{3m+2} \times 8} = 81$$

$$\frac{3^{3n} \times 9 - 3^{3n}}{3^{3m+2} \times 8} = 3^4$$

$$\frac{3^{3n}(9-1)}{3^{3m+2} \times 8} = 3^4$$

$$\frac{3^{3n-3m-2} \times 8}{8} = 3^4$$

$$3^{3n-3m-2} = 3^4$$

$$\therefore 3n - 3m - 2 = 4$$

$$-2 - 4 = 3m - 3n$$

$$3(m - n) = -6$$

$$m - n = \frac{-6}{3} = -2$$

08. (B)

$$\sqrt{2023^2 + 2 \times 2023 + 1}$$

$$= \sqrt{40,92,529 + 4046 + 1}$$

$$= \sqrt{40,96,576}$$

$$= 2024$$

(or)

$$= \sqrt{2023^2 + 2 \times 2023 + 1}$$

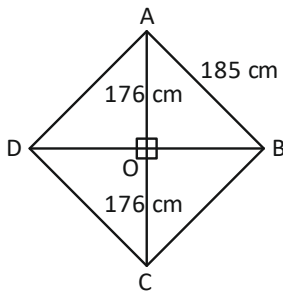
$$= \sqrt{2023^2 + 2 \times 2023 \times 1 + 1^2}$$

$$= \sqrt{(2023+1)^2} = 2024$$

09. (D)  $\sqrt[3]{92^3 + 3 \times 92^2 \times 8 + 3 \times 92 \times 8^2 + 8^3}$   
 $= \sqrt[3]{7,78,688 + 2,03,136 + 17,664 + 512}$   
 $= \sqrt[3]{10,00,000}$   
 $= 100$

10. (A)  $a^2 - b^2 = (a + b)(a - b)$   
 $\therefore 1,23,45,6782 - 8,76,54,322^2 = (12345678 + 87654322)(12345678 - 87654322)$   
 $= (10,00,00,000)(-75308644)$

11. (C) In  $\triangle AOB$ ,  $\angle AOB = 90^\circ$   
 $\therefore AB^2 = AO^2 + OB^2$   
 $[\because \text{pythagorus theorem}]$



$185^2 = 35^2 + OB^2$   
 $34225 = 176^2 + OB^2$   
 $34225 = 30976 + OB^2$   
 $OB^2 = 34,225 - 30,976$   
 $OB^2 = 3249$

$OB = \sqrt{3249}$   
 $OB = 57 \text{ cm}$

$\therefore BD = 2 \times OB = 2 \times 57 \text{ cm} = 114 \text{ m}$

Area of the rhombus  $= \frac{1}{2} \times AC \times BD$

$= \frac{1}{2} \times 352 \times 114 \text{ cm}^2$   
 $= 20,064 \text{ cm}^2$

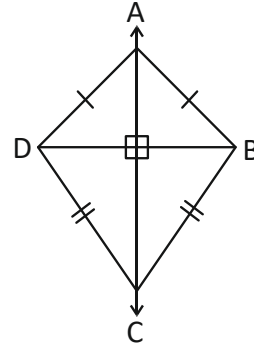
12. (C) In a quadrilateral ABCD, given the angles ratio of A, B, C & D = 2 : 4 : 5 : 7  
 $= 2x : 4x : 5x : 7x$   
 But  $\angle A + \angle B + \angle C + \angle D = 360^\circ$   
 $2x + 4x + 5x + 7x = 360^\circ$   
 $18x = 360^\circ$

$x = \frac{360^\circ}{18}$

$x = 20^\circ$

$\therefore$  Smallest angle  $= 2x = 2 \times 20^\circ = 40^\circ$

13. (B) AB is the line symmetry of the kite.



14. (C) No. of symbols representing the no. of visitors after Wednesday = 6 + 4 = 10

No. of visitors represented by each symbol = 6

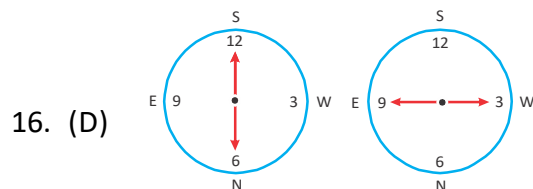
Each symbol = 6

$\therefore$  Total no. of visitors = 10  $\times$  6 = 60.

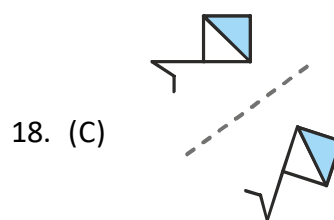
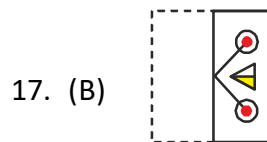
15. (D)  $\frac{5^\circ}{2^\circ + 7^\circ} = \frac{1}{1 + 1} = \frac{1}{2}$

which is a rational number

**REASONING**



$\therefore$  At 9 : 15 p.m. the minute hand point in west direction.



19. (B) Removing vowels from the alphabet sequence, we get: B C D F G H J K L M N P Q R S T V W X Y Z

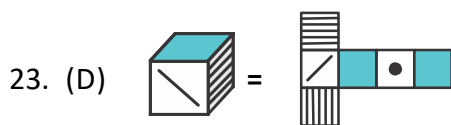
Then the letter ninth to the right of the sixth letter from the left end means 15th letter from the left end.

Hence S is correct.

20. (C) DUEACTION is not a word, so the answer must be AUCTIONED (sold to the highest bidder), CAUTIONED (warned) or EDUCATION (receiving instruction at school or university). However, neither AUCTIONED nor CAUTIONED would make sense in the context of the sentence, so the answer is EDUCATION

21. (C) R is the father because Q is the son of R.

22. (C) 4, 25, 14, 1, 13, 9, 3  
D, Y, N, A, M, I, C



24. (C) Think you is the correct answer because inky is hidden between think and you.

25. (B) The word is divided into groups of two letters each and then the letters of each group are written in a reverse order.

26. (B) In all the remaining figures dark shaded portion is smaller than the light fill portion.

27. (B) In the first column  $25 = (17 - 12)^2$  and second column  $4 = (13 - 11)^2$ , therefore  $(19 - 16)^2$  is 9.



29. (D) The pattern belongs only two squares and two circle with no shading with same sizes.

30. (B) The rule of respective movements of the letters  
+3, -3, -3, +3.

## COMPUTERS

31. (D) All the given devices are used to backup the data.

32. (C) Polymorphic Virus is difficult to identify as they keep on changing their type and signature. They're not easily detectable by traditional antivirus. It usually changes the signature pattern whenever it replicates itself.

33. (D) Variable not declared and hence executes an error.

34. (C) McAfee is not a computer virus; it is a well-known antivirus software developed by McAfee, Inc. It is used to protect computers from various types of malware, including viruses, Trojans, and other threats. On the other hand, (A) Trojan Horse, (B) Logic Bomb, and (D) Redlof are examples of various types of computer threats or malware

35. (C) Tim Berners-Lee wrote the first proposal for the World Wide Web in March 1989 and his second proposal in May 1990. Together with Belgian systems engineer Robert Cailliau, this was formalised as a management proposal in November 1990.

36. (D) Google, Yahoo and Bing are search engines, while windows is an operating system.

37. (A) Web crawlers, also called bots or spiders or agents are small programs that follow links from already known pages to the new ones, that need to be discovered. Web search engine works by storing information about web pages, retrieved by a web crawler.

38. (A) In shape tweening, the process of transforming one shape into another is often referred to as "morphing," creating a seamless transition between the two shapes.

39. (B) By placing each body part on separate layers, the animator can manipulate them independently.

**ENGLISH**

40. (D) The correct answer is option (D) Ctrl + O. While Ctrl + T is for toggling the timeline, F5 inserts frames, and F6 inserts keyframes; Ctrl + O is commonly used to open files.
41. (D) The <s> element is used to represent text that is no longer accurate or relevant but should not be deleted. It typically renders with a strikethrough line to visually indicate that the text is no longer valid.
42. (D) The latest HTML standard is HTML 5.0
43. (D) A Query in Microsoft Access lets users search for specific data by filtering specific criteria. It can pull information from one table or multiple tables if they are related.
44. (A) The HTML tag that displays headings of the smallest size is:  
<H6>...</H6>
45. (C) The WHILE...WEND statement creates a loop that continues as long as a specified condition is true.
46. (C) The correct punctuation to express that Ms. Shreya yelled the statement angrily is an exclamation mark. The sentence should be:  
"Amrutha, come here now!" yelled Ms. Shreya angrily
47. (D) Synonym of coarse is rough
48. (A) The word "belief" in the sentence "I have firm belief that Rishab is telling the truth." refers to a conviction or trust in something. The most suitable replacement for "belief" from the given options is: (A) trust
49. (A) The relationship between "Hill" and "Mountain" is that a mountain is a larger and often more prominent version of a hill. Following this relationship, the answer that represents a larger version of a "Stream" would be river
50. (B) The sentence should read: "I have only four rupees in my pocket."

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**THE END**

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