UIMO SAMPLE QUESTIONS

CLASS - 08

MATHEMATICS - 1

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01. If $p = \sqrt{-1}$, what is the value of $(1 - p)^{20}$?

   (A) $-p$ (B) -1024 (C) 1024 (D) $1 - p$

02. A student has to secure 40% marks to pass a test. He got 30 marks and failed by 50 marks. What is the maximum marks of the test ?

   (A) 160   (B) 180   (C) 200   (D) 320

03. The product $864 \times n$ is a perfect cube. What is the smallest possible value of 'n' ?

   (A) 2   (B) -2 (C) 1   (D) -4

04. A man bought goods worth ₹ 6000 and sold half of them at a gain of 10%. At what gain percent must he sell the remainder to get a gain of 25% on the whole ?

   (A) 40%   (B) 25%   (C) 35%   (D) 20%

05. How many different chords are determined by 8 distinct points lying on a circle ?

   (A) 40   (B) 18   (C) 32   (D) 28

MATHEMATICS - 2

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01. If P = ₹ 10,000 and R = 6% then

   (A) I = ₹ 1,800 if T = 3 years.   (B) I = ₹ 300 if T = 6 months.

   (C) I = ₹ 2,400 if T = 18 months.   (D) I = ₹ 3000 if T = 5 years.

02. Which of the following equation does not satisfy (–1) ?

   (A) $2x - 1 = -3$ (B) $2x + 1 = -3$ (C) $2x + 1 = 3$ (D) $2x - 1 = 3$

03. Which of the following one false for $\sqrt{9+4}$?

   (A) $\sqrt{9} + \sqrt{4}$ (B) $3 + 2$ (C) $\sqrt{13}$ (D) $\sqrt{5}$

04. $(a^4 - 1) = $ _____

   (A) $(a^2 + 1)(a^2 - 1)$ (B) $(a^2 - 1)(a^2 - 1)$

   (C) $(a^2 + 1)(a^2 + 1)$ (D) $(a^2 + 1)(a + 1)(a - 1)$

05. Which of the following is not true ?

   (A) $\sqrt{50} = 5 \times \sqrt{2}$ (B) $\sqrt{60} = 4 \times \sqrt{15}$

   (C) $\sqrt{243} = 9 \times \sqrt{3}$ (D) $\sqrt{(75 - 10^2)} = 5$

REASONING

01. Identify the word based on the pattern in the given words.

AT, ATE, LATE, LATER, **?**

(A) TAILOR (B) PLATER (C) LATERA (D) LATEDLY

02. If × stands for 'addition', ÷ stands for 'subtraction', + stands for 'multiplication' and − stands for 'division', then 20 × 8 ÷ 8 − 4 + 2 = ?

(A) 80 (B) 25 (C) 24 (D) 5

03. Which letter is fourth to the right of M in English alphabetical order ?

(A) Q (B) O (C) P (D) R

04. Which is different ?

(A) RQPO (B) VUTS (C) HNOP (D) HGFE

05. Which scrambled word is a synonym of the given group of words ?

One who eats too much

(A) IMINRACL (B) NOTTULG

(C) EUGSNI (D) RPCOTUR

CRITICAL THINKING

01. Pointing to a photograph. Balu said, "He is the son of the only daughter of the father of my brother". How Balu is related to the man in the photograph ?

(A) Nephew (B) Brother

(C) Father (D) Maternal uncle

02. Find the total number of occurrences of capital letter T in the figure.
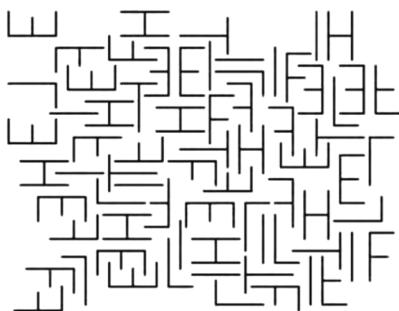
(A) 5 (B) 6 (C) 7 (D) 8

03. Six girls are sitting in a circle facing to the centre of the circle. They are P, Q, R, S, T and V. T is not between Q and S but some other one. P is next to the left of V. R is 4th to the right of P. What is the position of T ?

(A) Just next to the right of Q (B) Second to the left of P

(C) Between Q and R (D) To the immediate right of V

04. Find the odd one out among the letters below.

(A) A   (B) A   (C) A   (D) A
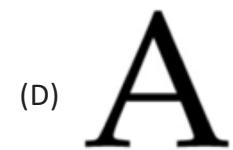
05. Choose the essential part of the word 'LANGUAGE'.

(A) tongue   (B) slang   (C) writing   (D) words

KEY & SOLUTION

MATHEMATICS - 1

01. **(B)** $(1 - p)^{20} = [(1 - p)^2]^{10}$

$$= (1 + p^2 - 2p)^{10}$$

$$= [1 + (-1) - 2(\sqrt{-1})]^{10}$$

$$= [1 - 1 - 2(\sqrt{-1})]^{10}$$

$$= [-2(\sqrt{-1})]^{10}$$

$$= (-2)^{10} (\sqrt{-1})^{10}$$

$$= 1024 \times (-1)^{10/2}$$

$$= (1024)(-1) = -1024$$

02. **(C)** Let total marks be 'x'

Given 40% of $x = (30 + 50)$

$$\frac{40}{100} \times (x) = 80$$

$$x = 80 \times \frac{100}{40} = 200$$

03. **(B)** $864 \times n = 12 \times 12 \times 6 \times n$

$$= 12 \times 12 \times (6 \times -2) \ [\because \text{Given 'n' least then n = -2}]$$

$$= -1728 = (-12)^3$$

$$\therefore n = -2$$

04. **(A)** Half of goods SP $= ₹\ 3000 \times \dfrac{(100 + 10)}{100} = ₹\ 3300$

25% gain of whole $= ₹\ 6000\left(\dfrac{125}{60}\right) = ₹\ 7500$

Remaining sale amount $= ₹\ 7500 - ₹\ 3300 = ₹\ 4200$

$\therefore$ Profit $= ₹\ 4200 - ₹\ 3000 = ₹\ 1200$

Profit percentage or remaining amount = $\dfrac{₹\,1200}{₹\,3000} \times 100 = 40\%$

05. **(D)** Number of chords $= \dfrac{n(n-1)}{2}$

$$= \dfrac{8 \times 7}{2} = 28$$

MATHEMATICS - 2

01. **(A,B,D)** (A) If P = ₹ 10,000 R = 6% and T = 3 years then I $= \dfrac{PTR}{100} = \dfrac{10000 \times 6 \times 3}{100}$ = ₹ 1800

(B) $I = \dfrac{PTR}{100} = \dfrac{10000 \times 6 \times \dfrac{1}{2}}{100}$ = ₹ 300

(C) $I = \dfrac{PTR}{100} = \dfrac{10000 \times 6 \times \dfrac{3}{2}}{100}$ = ₹ 2700

(D) $I = \dfrac{PTR}{100} = \dfrac{10000 \times 6 \times 5}{100}$ = ₹ 3000

02. **(B,C,D)** (A) $2x = -3 + 1 = -2 \Rightarrow x = -\dfrac{2}{2} = -1$

(B) $2x = -3 - 1 \Rightarrow 2x = -4 \Rightarrow x = \dfrac{-4}{2} \Rightarrow x = -2$

(C) $2x = 3 - 1 \Rightarrow x = \dfrac{2}{2} = 1$

(D) $2x = 3 + 1 \Rightarrow 2x = 4 \Rightarrow x = 2$

03. **(A,B,D)** (A) $\sqrt{9+4} \neq \sqrt{9} + \sqrt{4}$

(B) $\sqrt{9+4} \neq \sqrt{9} + \sqrt{4}$

$\therefore \sqrt{9+4} \neq 3+2$

(C) $\sqrt{9+4} = \sqrt{13}$

(D) $\sqrt{9+4} \neq \sqrt{\sqrt{9} + \sqrt{4}}$

$\neq \sqrt{3+2}$

$\sqrt{9+4} \neq \sqrt{5}$

04. **(A,D)** $(a^4 - 1) = (a^2)^2 - 1^2$

$\qquad = (a^2 - 1)(a^2 + 1) \quad = (a^2 - 1^2)(a^2 + 1)$

$\qquad = (a + 1)(a - 1)(a^2 + 1)$

05. **(B,D)** (A) $\sqrt{50} = \sqrt{5 \times 5 \times 2} = 5\sqrt{2}$ (B) $\sqrt{60} = \sqrt{4 \times 15} = 2\sqrt{15}$

$\qquad$ (C) $\sqrt{243} = \sqrt{81 \times 3} = \sqrt{9 \times 9 \times 3} = 9\sqrt{3}$ (D) $\sqrt{(75 - 10^2)} = \sqrt{75 - 100} = \sqrt{-25} \notin R$

REASONING

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01. **(B)**
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     A T↓
    ↓A T E
     L A T E↓
    ↓L A T E R
     P L A T E R
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02. **(C)** $20 + 8 - 8 \div 4 \times 2$

$\qquad = 20 + 8 - 2 \times 2$

$\qquad 20 + 8 - 4 = 24$

03. **(A)**
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    M  N  O  P  Q  R
  → 1  2  3  4
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$\qquad$ 4th letter to the right of M is 'Q.

04. **(C)** HNOP is different

$\qquad$ RQPO – OPQR

$\qquad$ VUTS – STUV

$\qquad$ HGFE – EFGH

05. **(B)** One who eats too much is GLUTTON

CRITICAL THINKING

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01. **(D)** The man in the photo is the son of the sister of Balu. Hence, Balu is the maternal uncle of the man in the photograph.

02. **(C)** There are 7 capital letters T in the figure.

03. **(D)**

04. **(C)**
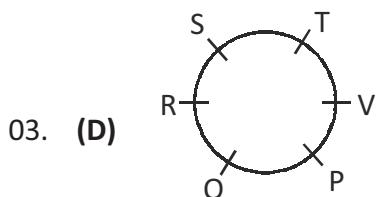
05. **(D)** Words are necessary part of language. Slang is not necessary to language (choice b). Not all languages are written (choice c). Not all languages are spoken (choice a).