BITSAT 2025 June 25 Shift 2 Question Paper

Time Allowed :3 Hours	**Maximum Marks :**390	**Total questions :**130

General Instructions

Read the following instructions very carefully and strictly follow them:

1. Duration of Exam: 3 Hours
2. Total Number of Questions: 130 Questions
3. Section-wise Distribution of Questions:
    - Physics - 40 Questions
    - Chemistry - 40 Questions
    - Mathematics - 50 Questions
4. Type of Questions: Multiple Choice Questions (Objective)
5. Marking Scheme: Three marks are awarded for each correct response
6. Negative Marking: One mark is deducted for every incorrect answer.
7. Each question has four options; only one is correct.
8. Questions are designed to test analytical thinking and problem-solving skills.

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1. A coil of resistance 10 Ω is connected to a battery of 12 V. If the current flowing through the coil is 2 A, what is the power dissipated in the coil?

(A) 40 W

(B) 10 W

(C) 24 W

(D) 30 W

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2. Two identical bodies of mass 1 kg each are moving towards each other with velocities of 5 m/s and 3 m/s, respectively. They collide elastically. What will be the velocity of the body initially moving at 5 m/s after the collision?

(a) -3 m/s

(b) 3 m/s

(c) -5 m/s

(d) 5 m/s

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3. Which of the following compounds has the highest boiling point?

(a) Methanol (CH_3OH)

(b) Ethanol (C_2H_5OH)

(c) Water (H_2O)

(d) Propanol (C_3H_7OH)

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4. The pH of a solution is 3. What is the concentration of hydrogen ions in this solution?

(a) 1×10^{-3} M

(b) 3×10^{-4} M

(c) 10^{-3} M

(d) 10^{-3} M

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5. If the roots of the quadratic equation $2x^2 - 5x + k = 0$ are real and distinct, what is the range of values for k?

(A) $k > \frac{25}{8}$

(B) $k < \frac{25}{8}$

(C) $k > 0$

(D) $k < 0$

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6. If $\log_{10}(x + 1) = 2$, what is the value of x?

(a) 99

(b) 100

(c) 101

(d) 99.9

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7. A particle moves in a circle of radius 2 m with a speed of 6 m/s. What is the centripetal acceleration of the particle?

(1) 9 m/s^2

(2) 18 m/s^2

(3) 3 m/s^2

(4) 36 m/s^2

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8. A convex lens has focal length 20 cm. An object is placed at a distance of 40 cm from the lens. What is the position of the image formed?

(1) 40 cm on the opposite side

(2) 20 cm on the same side

(3) 20 cm on the opposite side

(4) 40 cm on the same side

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9. Which of the following substances does not undergo hydrolysis in aqueous solution?

(A) Sodium acetate

(B) Ammonium chloride

(C) Sodium carbonate

(D) Sodium chloride

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10. In the reaction $2\mathbf{NaOH} + \mathbf{Cl_2} \rightarrow \mathbf{NaCl} + \mathbf{NaOCl} + \mathbf{H_2O}$, what is the oxidation state of chlorine in sodium hypochlorite (NaOCl)?

(A) +1

(B) +2

(C) -1

(D) 0

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11. The sum of the first 30 terms of an arithmetic progression is 930. If the first term is 2, what is the common difference of the progression?

(A) 1

(B) 2

(C) 3

(D) 4

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12. If $\sin\theta + \cos\theta = 1$, what is the value of $\sin^2\theta + \cos^2\theta$?

(A) 0

(B) 1

(C) 2

(D) -1