BITSAT 2025 June 24 Shift 1 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.

1. A dust particle of mass 4×10^{12} mg is suspended in air under the influence of an electric field of 50 N/C directed vertically upwards. How many electrons were removed from the neutral dust particle? (g = 10 m/s^2)

(1) 15

(2) 8

(3) 5

(4) 4

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2. The potential of a large liquid drop when eight liquid drops are combined is 20 V. What is the potential of each single drop?

(1) 10 V

(2) 7.5 V

(3) 5 V

(4) 2.5 V

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3. A simple pendulum performing small oscillations at a height R above Earth's surface has a time period of $T_1 = 4$ s. What would be its time period at a point which is at a height $2R$ from Earth's surface?

(1) $T_1 = T_2$

(2) $2T_1 = 3T_2$

(3) $3T_1 = 2T_2$

(4) $2T_1 = T_2$

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4. The area enclosed between the curve $y = \log_e(x + e)$ and the coordinate axes is:

(1) 1

(2) 2

(3) 3

(4) 4

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5. A source supplies heat to a system at the rate of 1000 W. If the system performs work at a rate of 200 W, what is the rate at which internal energy of the system increases?

(1) 1200 W

(2) 600 W

(3) 500 W

(4) 800 W

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6. The area enclosed between the curve $y = \log_e(x + e)$ and the coordinate axes is:

(1) 1

(2) 2

(3) 3

(4) 4

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7. In a mixture of gases, the average number of degrees of freedom per molecule is 6. If the rms speed of the molecule is c, what is the velocity of sound in the gas?

(1) $c/\sqrt{3}$

(2) $c/\sqrt{2}$

(3) $2c/3$

(4) c

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8. Identify the next number in the series: 2, 6, 12, 20, ?

(1) 30

(2) 32

(3) 34

(4) 36

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9. Pointing to a photograph, a man says, "I have no brothers or sisters, but the father of the person in the photograph is my father's son." Who is the person in the photograph?

(1) His son

(2) His nephew

(3) His brother

(4) His father
