# BITSAT 2025 June 24 Shift 2 Question Paper

| **Time Allowed :**3 Hours | **Maximum Marks :**390 | **Total questions :**130 |
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## 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 block of mass 5 kg is placed on a frictionless surface and a force of 20 N is applied horizontally. What is the acceleration of the block?**

(1) 4 m/s$^2$

(2) 2 m/s$^2$

(3) 5 m/s$^2$

(4) 10 m/s$^2$

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**2. What is the pH of a 0.01 M solution of HCl?**

(1) 1

(2) 2

(3) 3

(4) 4

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**3. Find the derivative of $y = \sin(x^2)$ with respect to $x$.**

(1) $\cos(x^2)$

(2) $2x\cos(x^2)$

(3) $\sin(x^2) \cdot 2x$

(4) $\cos(x^2) \cdot x$

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**4. The equivalent resistance between points A and B in a circuit with two resistors of 6 Ω each connected in parallel is:**

(1) 12 Ω

(2) 6 Ω

(3) 3 Ω

(4) 4 Ω

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**5. What is the IUPAC name of $CH_3CH(OH)CH_3$?**

(1) Propan-1-ol

(2) Propan-2-ol

(3) Ethanol

(4) Butan-2-ol

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**6. A simple pendulum has a time period of 2 s on Earth's surface. What is its time period at a height equal to the Earth's radius (R)? (Acceleration due to gravity at height h is $g_h = \frac{g}{(1+h/R)^2}$).**

(1) 2 s

(2) $2\sqrt{2}$ s

(3) 4 s

(4) $\sqrt{2}$ s

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**7. Solve for $x$: $\log_{10}(x^2) = 2$.**

(1) 10

(2) 100

(3) $\pm 10$

(4) $\pm 100$

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**8. Choose the word most opposite in meaning to "Candid":**

(1) Honest

(2) Deceptive

(3) Frank

(4) Sincere

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**9. In a certain code, "CAT" is written as "DBU." How is "DOG" written in that code?**

(1) EPH

(2) FQI

(3) EQH

(4) FPH

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**10. The work done by a gas during an isothermal expansion from 2 L to 4 L at a constant temperature, with pressure initially at 2 atm, is: (Use $R = 8.314$ J/mol·K, $T = 300$ K).**

(1) 281 J

(2) 831.4 J

(3) 1247.1 J

(4) 1662.8 J

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