BITSAT 2026 May 27 Shift 2

Question Paper (Memory-Based)

Conducted by BITS Pilani

General Instructions

(i) **Duration:** The total duration of the examination is 3 hours (180 minutes).

(ii) **Total Marks:** The complete paper carries a maximum of 390 marks.

(iii) **Structure:** The paper has 4 Sections:

- **Part 1:** 30 Multiple Choice Questions (Physics).
- **Part 2:** 30 Multiple Choice Questions (Chemistry).
- **Part 3:** 10 Multiple Choice Questions (English Proficiency), 20 Multiple Choice Questions (Logical Reasoning)
- **Part 4:** 40 Multiple Choice Questions (Mathematics/Biology)

(iv) **Compulsory Questions:** All 130 questions are compulsory,and +12 Questions(Optional Extra Questions)

(v) Each question has four options. Only **one** option is correct.

(vi) **Correct Answer:** +3 marks.

(vii) **Incorrect Answer:** −1 (Negative marking).

(viii) **Unanswered/Marked for Review:** 0 marks.

PHYSICS

1. A particle moves along a straight line such that its position is given by $x(t) = 3t^2 - t^3$. What is its velocity at $t = 2$ seconds?

(A) 0 m/s

(B) 4 m/s

(C) −4 m/s

(D) 12 m/s

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2. A force of 20 N is applied to a 5 kg object at an angle of 60° to the horizontal. What is the horizontal acceleration of the object, ignoring friction?

(A) 2 m/s^2

(B) 4 m/s^2

(C) 1.73 m/s^2

(D) 2.5 m/s^2

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3. A ball is projected horizontally from the top of a tower with a velocity of 10 m/s. If it hits the ground 2 seconds later, what is the height of the tower? (Take $g = 10$ m/s^2)

(A) 20 m

(B) 10 m

(C) 40 m

(D) 25 m

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4. An ideal gas is compressed isothermally. During this process:

(A) Internal energy remains constant

(B) Temperature increases

(C) No work is done on the gas

(D) Pressure remains constant

CHEMISTRY

5. Which of the following compounds exhibits the highest boiling point due to hydrogen bonding?

(A) H_2O

(B) H_2S

(C) CH_4

(D) HCl

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6. For a first-order reaction $A \rightarrow B$, the rate constant is $0.1\ s^{-1}$. What is the time required for 50% completion?

(A) 6.93 s

(B) 5 s

(C) 10 s

(D) 0.693 s

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7. In a galvanic cell, oxidation always occurs at:

(A) The anode

(B) The cathode

(C) The salt bridge

(D) The electrolyte

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8. Which of the following is an example of an intensive property?

(A) Temperature

(B) Mass

(C) Volume

(D) Total energy

MATHEMTICS

9. If

$$f(x) = \ln\left(\frac{\sin x}{1+\cos x}\right),$$

then $f'(x)$ is equal to:

(A) $\csc x$

(B) $\cot x$

(C) $\tan x$

(D) $\sec x$

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10. The sum of the first 20 terms of an arithmetic progression is 640, and the difference between the 15^{th} and 5^{th} terms is 30. Find the first term of the A.P.

(A) 12

(B) 14

(C) 17

(D) 19

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11. If a real matrix A satisfies

$$A^T = A \quad \textbf{and} \quad A^2 = I,$$

then the eigenvalues of A must be:

(A) Only 1

(B) Only -1

(C) Either 1 or -1

(D) Zero only

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12. Evaluate:

$$\int_0^1 x^3 \ln(1+x)\, dx$$

(A) $\frac{7}{48}$

(B) $\frac{25}{48}$

(C) $\frac{1}{8}$

(D) $\frac{5}{24}$
