BITSAT 2026 May 24 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. Two capillary tubes of radii r_1 and r_2 $(r_1 > r_2)$ are dipped vertically in the same liquid. The rise of liquid in the tubes h_1 and h_2 satisfies:

(A) $h_1 > h_2$

(B) $h_1 < h_2$

(C) $h_1 = h_2$

(D) $h_1 r_2 = h_2 r_1$

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2. An ideal gas heat engine operates in a Carnot cycle between 227°C and 127°C. It absorbs 6×10^4 cal of heat at the higher temperature. The amount of heat converted into work is:

(A) 1.2×10^4 cal

(B) 4.8×10^4 cal

(C) 2.4×10^4 cal

(D) 6.0×10^3 cal

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3. The root mean square (rms) speed of the molecules of an ideal gas at a given temperature T is v. If the temperature is increased to $4T$ and the gas dissociates into atoms, the new rms speed becomes:

(A) v

(B) $2v$

(C) $4v$

(D) $2\sqrt{2}\,v$

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4. A fundamental harmonic standing wave is generated in a string fixed at both ends. If the tension in the string is increased by 21%, the percentage change in the fundamental frequency will be:

(A) 10%

(B) 21%

(C) 11%

(D) 10.5%

CHEMISTRY

5. Ionisation energy of H-atom is 13.6 eV. The wavelength of the spectral line emitted when an electron in Be^{3+} comes from 5^{th} energy level to 2^{nd} energy level is:

(A) 43.5 nm

(B) 4350 nm

(C) 4.35 nm

(D) 435 nm

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6. 10 g each of CH_4 and O_2 are kept in cylinders of same volume under same temperature, give the pressure ratio of two gases:

(A) 3 : 4

(B) 2 : 3

(C) 1 : 4

(D) 2 : 1

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7. In a cyclic pV process forming a square loop from $(p = 1$ atm$, V = 2$L$)$ to $(p = 3$ atm$, V = 4$L$)$, then, the net heat absorbed by the gas is:

(A) $2\text{L} \cdot \text{atm}$

(B) $4\text{L} \cdot \text{atm}$

(C) $8\text{L} \cdot \text{atm}$

(D) $6\text{L} \cdot \text{atm}$

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8. The temperature in K at which $\Delta G = 0$, for a given reaction with $\Delta H = -20.5$ kJ mol^{-1} and $\Delta S = -50.0$ J K^{-1} mol^{-1} is:

(A) -410

(B) 410

(C) 2.44

(D) -2.44

MATHEMATICS

9. The value of $\lim_{n\to\infty} \prod_{r=3}^{n} \frac{r^3-8}{r^3+8}$ equals to:

(A) 2/7

(B) 3/7

(C) 4/7

(D) 6/7

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10. The point of inflexion for the curve $y = (x-a)^n$, where n is an odd integer and $n \geq 3$ is:

(A) $(a, 0)$

(B) $(0, a)$

(C) $(0, 0)$

(D) None of these

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11. If $y^x = e^{y-x}$, then $\frac{dy}{dx}$ is equal to:

(A) $\frac{1+\log y}{y \log y}$

(B) $\frac{(1+\log y)^2}{y \log y}$

(C) $\frac{1+\log y}{(\log y)^2}$

(D) $\frac{(1+\log y)^2}{\log y}$

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12. The domain of the function $f(x) = \sqrt{x - \sqrt{1-x^2}}$ is:

(A) $\left[-1, -\frac{1}{\sqrt{2}}\right] \cup \left[\frac{1}{\sqrt{2}}, 1\right]$

(B) $[-1, 1]$

(C) $\left(-\infty, -\frac{1}{\sqrt{2}}\right] \cup \left[\frac{1}{\sqrt{2}}, +\infty\right]$

(D) $\left[\frac{1}{\sqrt{2}}, 1\right]$
