BITSAT 2026 May 25 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. According to Bohr's model of the hydrogen atom, the ratio of the kinetic energy to the total energy of an electron in 3^{rd} excited state is?

(A) 1 : 1

(B) $1 : -1$

(C) $-1 : 1$

(D) $1 : 2$

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2. A radioactive sample has a half-life of 10 days. The fraction of the initial nuclei decayed after 40 days is:

(A) 1/4

(B) 3/4

(C) 1/16

(D) 15/16

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3. A block of mass M attached to a horizontal spring of spring constant k executes SHM with amplitude A. When the block passes through its mean position, a small piece of mass m is dropped vertically onto it and sticks to it. The new amplitude of oscillation is:

(A) $A\sqrt{\left(\frac{M}{M+m}\right)}$

(B) $A\left(\frac{M}{M+m}\right)$

(C) $A\sqrt{\left(\frac{M+m}{M}\right)}$

(D) A

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4. The dimensions of magnetic flux are identical to the dimensions of:

(A) EMF × Time

(B) Electric field × Velocity

(C) Force/Current

(D) Magnetic field × Current

CHEMISTRY

5. If the ionic product of $Ni(OH)_2$ is 1.9×10^{-15}, then the molar solubility of $Ni(OH)_2$ in 1.0 M NaOH is

(A) 2.9×10^{-18} M

(B) 1.9×10^{-13} M

(C) 1.9×10^{-15} M

(D) 2.9×10^{-14} M

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6. The solubility of $Pb(OH)_2$ in water is 6.7×10^{-6} M. Its solubility in a buffer solution of pH $= 8$ would be:

(A) 1.2×10^{-2}

(B) 1.6×10^{-3}

(C) 1.6×10^{-2}

(D) 1.2×10^{-3}

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7. 0.1 m of urea and 0.05 m of $CaCl_2$ are dissolved separately in equal volumes of water. Which solution will have higher elevation in boiling point?

(A) Urea solution

(B) $CaCl_2$ solution

(C) Both will show equal elevation

(D) None will show elevation

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8. A decimolar solution of potassium ferrocyanide is 50% dissociated at 300K. The osmotic pressure of the solution is (R $= 8.314$ JK^{-1}mol^{-1})

(A) 7.48 atm

(B) 4.99 atm

(C) 3.74 atm

(D) 6.23 atm

MATHEMATICS

9. Given a real valued function f such that $f(x) = \begin{cases} \frac{\tan^2\{x\}}{x^2-[x]^2} & \text{for } x > 0 \\ 1 & \text{for } x = 0 \\ \sqrt{\{x\}\cot\{x\}} & \text{for } x < 0 \end{cases}$ **then**

(1) LHL $= 1$

(2) RHL $= \sqrt{\cot 1}$

(3) $\lim_{x\to 0} f(x)$ exist

(4) $\lim_{x\to 0} f(x)$ does not exists

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10. If the eccentricity and length of latus rectum of a hyperbola are $\frac{\sqrt{13}}{3}$ and $\frac{10}{3}$ units respectively, then what is the length of the transverse axis?

(A) $7/2$ unit

(B) 12 unit

(C) $15/2$ unit

(D) $15/4$ unit

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11. The eccentricity of the ellipse whose major axis is three times the minor axis is:

(A) $\sqrt{2}/3$

(B) $\sqrt{3}/2$

(C) $2\sqrt{2}/3$

(D) $2/\sqrt{3}$

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12. Let L_1 be the length of the common chord of the curves $x^2 + y^2 = 9$ and $y^2 = 8x$, and L_2 be the length of the latus rectum of $y^2 = 8x$, then:

(A) $L_1 > L_2$

(B) $L_1 = L_2$

(C) $L_1 < L_2$

(D) $L_1/L_2 = \sqrt{2}$
