BITSAT 2026 May 26 Shift 1

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 circle of radius R with a constant angular acceleration α. If the initial angular velocity is zero, the total acceleration of the particle at time t is:

(A) $R\alpha$

(B) $R\alpha^2t^2$

(C) $R\alpha\sqrt{1+\alpha^2t^4}$

(D) $R\alpha t$

---

2. The focal length of a convex lens is f in air. When it is completely immersed in water of refractive index $\frac{4}{3}$, its focal length becomes (take refractive index of glass = 1.5):

(A) f

(B) $2f$

(C) $4f$

(D) $\frac{f}{2}$

---

3. The stopping potential for photoelectrons emitted from a surface illuminated by light of wavelength λ is V_s. If the intensity of the incident light is doubled while keeping wavelength identical, the stopping potential will be:

(A) $2V_s$

(B) $\frac{V_s}{2}$

(C) V_s

(D) $4V_s$

---

4. The de-Broglie wavelength of an electron accelerated from rest through a potential difference of 100V is approximately:

(A) 1.227 Å

(B) 12.27 Å

(C) 0.1227 Å

(D) 122.7 Å

CHEMISTRY

5. Balance the following redox reaction in acidic medium and determine the stoichiometric

coefficient of H_2O in the final balanced equation.

$$MnO_4^-(aq) + Fe^{2+}(aq) \rightarrow Mn^{2+}(aq) + Fe^{3+}(aq)$$

(A) 2

(B) 4

(C) 6

(D) 8

---

6. Titration of 0.1467 g of primary standard $Na_2C_2O_4$ required 28.85 mL of $KMnO_4$ solution. Calculate the molar concentration of $KMnO_4$ solution.

(A) 0.01518 M

(B) 0.001518 M

(C) 0.15180 M

(D) 1.5180 M

---

7. A current of 4.0 A is passed through 0.5 L of 0.2 M NaCl solution for 1200s. Calculate the pH of the solution after electrolysis.

(A) 1.3

(B) 13

(C) 7.0

(D) 2.0

---

8. Using the standard electrode potential, find out the pair between which redox reaction is not feasible.

$E^{\ominus}$ values: $Fe^{3+}/Fe^{2+} = +0.77$ V; $I_2/I^- = +0.54$ V; $Cu^{2+}/Cu = +0.34$ V; $Ag^+/Ag = +0.80$ V

(A) Fe^{3+} and I^-

(B) Ag^+ and Cu

(C) Fe^{3+} and Cu

(D) Ag and Fe^{3+}

Mathematics

9. If p and q be the longest and the shortest distance respectively of the point $(-7, 2)$ from any point (α, β) on the curve whose equation is $x^2 + y^2 - 10x - 14y - 51 = 0$, then find the Geometric Mean (G.M.) of p and q.

(A) $2\sqrt{11}$

(B) $5\sqrt{5}$

(C) 13

(D) 11

---

10. The distance from the origin to the image of $(1, 1)$ with respect to the line $x + y + 5 = 0$ is:

(A) $7\sqrt{2}$

(B) $3\sqrt{2}$

(C) $6\sqrt{2}$

(D) $4\sqrt{2}$

---

11. General solution of $\tan 5\theta = \cot 2\theta$ is:

(A) $\theta = \frac{n\pi}{7} + \frac{\pi}{14}$

(B) $\theta = \frac{n\pi}{7} + \frac{\pi}{5}$

(C) $\theta = \frac{n\pi}{7} + \frac{\pi}{2}$

(D) $\theta = \frac{n\pi}{7} + \frac{\pi}{3}$

---

12. The sum of the series $\left(x + \frac{1}{x}\right)^2 + \left(x^2 + \frac{1}{x^2}\right)^2 + \left(x^3 + \frac{1}{x^3}\right)^2 \ldots\ldots\ldots$ up to n terms is:

(1) $\frac{x^{2n}-1}{x^2-1} \times \frac{x^{2n+2}+1}{x^{2n}} + 2n$

(2) $\frac{x^{2n}+1}{x^2+1} \times \frac{x^{2n+2}-1}{x^{2n}} - 2n$

(3) $\frac{x^{2n}-1}{x^2-1} \times \frac{x^{2n}-1}{x^{2n}} - 2n$

(4) None of these
