



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 200 marks.
- (iii) **Structure:** The paper has 3 Sections:
 - **Section A:** 50 Multiple Choice Questions (Physics).
 - **Section B:** 50 Multiple Choice Questions (Chemistry).
 - **Section B:** 100 Multiple Choice Questions (Biology).
- (iv) **Compulsory Questions:** All 200 questions are compulsory.
- (v) Each question has four options. Only **one** option is correct.
- (vi) **Correct Answer:** +1 marks.
- (vii) **Incorrect Answer:** (No Negative marking).
- (viii) **Unanswered/Marked for Review:** 0 marks.

1. The moment of inertia of a thin uniform rod of mass M and length L about an axis passing through its centre and perpendicular to its length is:

- (A) $ML^2/3$
 - (B) $ML^2/12$
 - (C) $ML^2/6$
 - (D) $ML^2/2$
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2. If the temperature of a hot reservoir is 600K and the cold reservoir is 300K, the efficiency of the Carnot engine is:

- (A) 25%
 - (B) 75%
 - (C) 50%
 - (D) 100%
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3. The SI unit of Magnetic Induction is:

- (A) Weber
 - (B) Tesla
 - (C) Henry
 - (D) Gauss
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4. In a stationary wave, the distance between a node and an adjacent antinode is:

- (A) $\lambda/2$
 - (B) λ
 - (C) $\lambda/4$
 - (D) 2λ
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5. The maximum kinetic energy of photoelectrons depends on:

- (A) Intensity of light
 - (B) Frequency of light
 - (C) Time of exposure
 - (D) Distance from source
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6. Which of the following is a monomer of Nylon 6,6?

- (A) Caprolactam

- (B) Adipic acid
 - (C) Glycine
 - (D) Vinyl chloride
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7. Ozonolysis of 2-Methylbut-2-ene followed by reaction with $\text{Zn}/\text{H}_2\text{O}$ gives:

- (A) Propanone and Ethanal
 - (B) Propanal and Ethanal
 - (C) Two moles of Propanone
 - (D) Butanone and Methanal
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8. The EAN (Effective Atomic Number) of Iron in $[\text{Fe}(\text{CN})_6]^{4-}$ is:

- (A) 34
 - (B) 35
 - (C) 36
 - (D) 38
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9. Which element has the highest electronegativity?

- (A) Lithium
 - (B) Sodium
 - (C) Potassium
 - (D) Fluorine
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10. The catalyst used in the manufacture of Ammonia by Haber's process is:

- (A) V_2O_5
 - (B) Finely divided Iron
 - (C) Platinum
 - (D) Nickel
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