



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. Calculate the centripetal acceleration of a particle moving in a circle of radius 5 m with a velocity of 20 m/s.

- (A) 80 m/s^2
- (B) 40 m/s^2
- (C) 100 m/s^2
- (D) 160 m/s^2

2. What is the working principle behind signal transmission in an optical fiber?

- (A) Refraction
- (B) Diffraction
- (C) Total Internal Reflection
- (D) Interference

3. Find the equivalent resistance of three resistors of 6Ω each connected in parallel.

- (A) 6Ω
- (B) 3Ω
- (C) 2Ω
- (D) 1Ω

4. According to Curie's Law, what happens to magnetic susceptibility if absolute temperature is doubled?

- (A) It doubles
- (B) It is halved
- (C) It remains constant
- (D) It becomes zero

5. Which series of the Hydrogen spectrum lies in the visible region?

- (A) Lyman Series
- (B) Balmer Series
- (C) Paschen Series
- (D) Brackett Series

6. Arrange carbocations in increasing order of stability.

- (A) Tertiary < Secondary < Primary
- (B) Primary < Secondary < Tertiary
- (C) Secondary < Primary < Tertiary
- (D) Primary < Tertiary < Secondary

7. What is the oxidation state of Phosphorus in H_3PO_4 ?

- (A) +3
- (B) +5
- (C) +1
- (D) -3

8. What color is produced when Phenol reacts with neutral Ferric Chloride?

- (A) Blue
- (B) Violet
- (C) Green
- (D) Yellow

9. Calculate the pH of a 0.001 M solution of HNO_3 .

- (A) 1
- (B) 2
- (C) 3
- (D) 4

10. What are the monomers of Buna-S?

- (A) Ethene and Styrene
 - (B) 1,3-Butadiene and Styrene
 - (C) Isoprene and Styrene
 - (D) Butadiene and Vinyl Chloride
-

11. Which plant hormone promotes apical dominance?

- (A) Gibberellin
 - (B) Cytokinin
 - (C) Auxin
 - (D) Ethylene
-

12. Name the antibody most abundant in human colostrum.

- (A) IgG
 - (B) IgM
 - (C) IgA
 - (D) IgE
-

13. What is the phenotypic ratio of a Mendelian dihybrid cross in F_2 ?

- (A) 3 : 1
 - (B) 1 : 2 : 1
 - (C) 9 : 3 : 3 : 1
 - (D) 1 : 1 : 1 : 1
-

14. Which enzyme acts as “molecular glue” to join DNA fragments?

- (A) DNA Polymerase
 - (B) DNA Ligase
 - (C) Helicase
 - (D) Restriction Endonuclease
-

15. In which ecological interaction is one species harmed while the other is unaffected?

- (A) Mutualism
 - (B) Parasitism
 - (C) Commensalism
 - (D) Amensalism
-