

**B.Sc.(FS) Semester - 2 (CBCS) Examination**  
**March/April – 2025 (New Course)**  
**PHYSICS (CORE)**

**Time: 2.30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1 (A) Answer any two questions. (10)
- 1) Explain speed of sound in gas.
  - 2) Explain Acoustics of buildings.
  - 3) Explain velocity of transverse wave on a string.
- Que.1(B) Answer any one question. (04)
- 1) Explain normal modes of the string.
  - 2) Write a note on Beats.
- Que.2 (A) Answer any two questions. (10)
- 1) Derive an equation for the efficiency of a half wave rectifier.
  - 2) Discuss construction, working and advantages of full wave bridge rectifier.
  - 3) Explain characteristics of common emitter connection
- Que.2(B) Answer any one question. (04)
- 1) Explain Zener diode as voltage regulator.
  - 2) Discuss comparison of transistor connections.
- Que.3(A) Answer any two questions. (10)
- 1) Explain wavefront.
  - 2) Explain Huygen's principle of wavefront.
  - 3) Explain interference by transmitted light.
- Que.3(B) Answer any one question. (04)
- 1) Explain Lloyd's single mirror.
  - 2) Discuss the conditions for interference of light.
- Que.4(A) Answer any two questions. (10)
- 1) Explain action of zone plate.
  - 2) Explain fraunhofer diffraction due to a single slit.
  - 3) Discuss plane diffraction grating.
- Que.4(B) Answer any one question. (04)
- 1) Compare zone plate and convex lens.
  - 2) Write a note on zone plate.
- Que.5(A) Answer any two questions. (10)
- 1) State and derive Gauss's theorem.
  - 2) Explain Mutual Inductance.
  - 3) Derive an equation of electric field due to infinite line of charge.
- Que.5(B) Answer any one question. (04)
- 1) Explain electric field.
  - 2) Write a note on Self Inductance.

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