

B.Sc. Semester - 2 (NEP-2020) Examination**MARCH/APRIL-2025****PHY: Mechanics and Solid-State Electronics (Minor-2)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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- Que-1 Answers the following questions (any two). (10)
1) Explain gravitational potential energy.
2) Explain escape velocity.
3) What is weightlessness? Explain it in a satellite.
- Que-2 Answers the following questions (any two). (10)
1) Derive an expression for the efficiency of a full wave rectifier.
2) Explain the working of centre tap full wave rectifier.
3) Explain the use of Zener diode as voltage regulator.
- Que-3 Answers the following questions (any two). (10)
1) Explain the action and working of transistor.
2) Explain common base connection in detail.
3) Discuss stabilization of operating point, explain its need.
- Que-4 Answers the following questions (any five). (10)
1) Discuss Kepler's law of orbits.
2) Write the applications of GPS.
3) Discuss Kepler's law of areas.
4) Explain filter circuits.
5) Write the comparison of rectifiers.
6) What is ripple factor? Find its value for full wave rectifier.
7) Write the advantages of common emitter configuration.
8) Write the names of transistor biasing methods.
9) Explain inherent variation of transistor parameters.
- Que-5 Answers the following questions (any two). (10)
1) Write a note on GPS.
2) Explain capacitor filter and write its advantages.
3) Explain voltage divider bias method for transistor biasing.
