

Note: Time allowed for Section – B and Section – C is 2 Hours and 45 minutes.

Section – B

Marks: 32

Q-II Answer any EIGHT parts. Each part carries FOUR marks.

1. How technology is shaped by Physics?
2. Can an object have zero acceleration and non-zero velocity at the same time?
Give an example.
3. Why does dust fly off, when a hanging carpet is beaten with a stick?
4. What is couple? Explain it with an example.
5. Differentiate between heat and temperature.
6. How woolen sweaters keep us warmer in winter?
7. Explain anomalous expansion of water.
8. Explain different types of motion by giving one example of each.
9. A 60 g bullet is fired from a gun with 3150 J of K.E. Find its velocity.
10. Moon is attracted by the earth, why it does not fall on earth.
11. Why a tile floor feels colder to bare feet than carpeted floor?

Section – C

Marks: 21

Note : Attempt any THREE questions. All questions carry equal marks.

- Q-III (a) State and explain international system of units. (4)
- (b) What is the acceleration produce by a force of 12 N exerted on an object of Mass 3 kg? (3)
- Q-IV (a) Prove that $v_f = v_i + at$ using graphical method. (4)
- (b) To open a door force of 15 N is applied at 30° to the horizontal, find the horizontal and vertical components of force. (3)
- Q-V (a) State and explain potential energy. Prove that $E_{GP,E} = mgh$ (4)
- (b) How much work can a 2.0 – hp motor do in 1.0 hour? (3)
- Q-VI (a) State and explain law of universal gravitation. (4)
- (b) What is the specific heat of a metal substance if 135 KJ of heat is needed to raise 4.1 kg of the metal from 18.0°C to 37.2°C ? (3)