

Q.2 Attempt any 8 questions of the following:

- i. Define S.I base units. Enlist the names and symbols of base units.
- ii. Why a balloon filled with air move forward when its air is released?
- iii. Which material is more elastic steel or rubber and why?
- iv. A ball is thrown upward with an initial speed of 5m/s. What will be its speed when it returns to starting point?
- v. Differentiate between real and apparent expansions of liquids,
- vi. What is Pascal's principle? Explain it with example,
- vii. Why is the surface of a conveyor belt made rough?
- viii. State and explain law of universal gravitation,
- ix. Moon is attracted by the earth why it does not fall on earth?
- x. Define and explain power.
- xi. The temperature of a normal human body is 37°C . Find this temperature on the Kelvin Scale.

SECTION – C

Marks: 24

Note: Attempt any 3 questions: Each carry 8 marks.

Q.3: (a) What is force? What are its unit? Distinguish between contact and non-contact forces.

(b) Calculate the mass of a body when a force of 700N produce an acceleration of 12.5ms^{-2}

Q. 4 (a) Prove that $S = vit + \frac{1}{2}at^2$ using graphical method.

(b) A golf ball that is initially traveling at 25m/s hits a sand trape and slows down with an acceleration of -20m/s^2 . Find its displacement after two seconds.

Q.5 (a) Determine the mass of earth by applying law of universal gravitation.

(b) The maximum height of a typical human can jump is about 60cm by how much does the gravitational potential energy increase for 72kg person?

Q.6 (a) Define kinetic energy. Derive the expression used for kinetic energy.

(b) Write note on Anomalous expansion of water.