Total Time: 2:40 Hours

Physics (Old)

(For New Course)

Total Marks: 53



## "Section-B"

Marks: 32

Q. 2. Attempt any Eight (8) of the following parts. Each part carries equal marks.

(i) Name any four derived units and write them as their base units.

(ii) A ball is thrown upward with an initial speed of 5 m/s. What will be its speed when it returns to starting point?

(iii) Prove graphically that $V_f = V_i + at$

(iv) Differentiate between static friction and kinetic friction.

(v) Why is the surface of a conveyor belt made rough?

(vi) Why does dust fly off, when a hanging carpet is beaten with a stick?

(vii) Why do wearing high heeled shoes sometimes cause lower back pain?

(viii) Why for same height, larger and smaller satellites must have same orbital speeds?

(ix) Why water tanks are constructed at the highest level in our houses?

(x) Why is ice at 0 °C a better coolant of soft drinks than water at 0 °C?

(xi) How woolen sweaters keep us warmer in winter?

## "Section-C"

Marks: 21

Note:- Attempt any Three (3) questions. Each question carries equal marks.

Q. 3. (a) Define Momentum. Relate force to change in momentum.

(b) Prove graphically that: $2as = V_f^2 - V_i^2$

Q. 4. (a) State the law of Universal Gravitation. Determine the mass of earth by applying law of gravitation.

(b) At which altitude above Earth's surface would the gravitational acceleration be 4.9 $m/s^2$.

Q. 5. (a) Using kinetic molecular model of matter, explain three states of matter.

(b) A 80 cm long, 1.0 mm diameter steel guitar string must be tightened to a tension of 2000 N by turning the tuning screws. By how much is the string stretched?

Q. 6. (a) Explain thermal conductivity of a substance and its mathematical description.

(b) State the law of conservation of energy and mass energy conversion relation.