

Time : 75 minutes

Marks: 25

Instructions:

- Q.1 to Q.2 are very short answer questions, carrying 1 mark each
- Q.3 to Q.5 are short answer questions, carrying 2 mark each
- Q.7 to Q. 10 are short answer questions, carrying 3 mark each
- Q.12 is long answer question, carrying 5 mark.

Properties of Matter [Liquids]

- Q.1 How does modulus of elasticity change with the change in temperature?
- Q.2 Hotter liquid flows speedier than the colder ones. Explain why.
- Q.3 What shape will the liquid take if it weighs nothing?
- Q.4 Calculate the work done in blowing a soap bubble of radius 2cm to 3cm, the surface tension of the soap solution is 30dyne/cm.
- Q.5 Define angle of contact what are the factors on which it depends.
- Q.6 Show that excess pressure inside a liquid drop is inversely proportional to the radius.
- Q.7 Explain the concept of elasticity using [a] Potential energy vs intermolecular distance [b] force vs intermolecular distance.
- Q.8 Derive an expression for terminal velocity of a spherical body falling through homogenous viscous liquid.
- Q.9 A plate of 100cm^2 in area rests on a layer of castor oil 2mm thick, whose coefficient of viscosity is 15.5 poise. Calculate the horizontal force required to move the plate with uniform speed of 3cm/s.
- Q.10 What is surface tension? Explain molecular theory of surface tension. Give units and dimensions of surface tension.