

XIT2KGLN15

7111

PHYSICS

(Term-2nd)

Time : 2½ Hours]

[Maximum Marks : 25

Note :- *In case of failure/re-appear and fresh private cases; i.e. candidates appearing for the first time after having passed the Secondary School Examination, marks secured out of 25 shall be raised proportionately as if obtained out of 35.*

(Long Answer Type Questions)

4 each

(Long Answer Type Questions)

1. Explain in brief the variation of 'g' with depth.

Or

Define Gravitational Potential Energy. Derive an expression for Gravitational Potential Energy.

2. Define SHM. Derive an expression for the total energy of a particle executing SHM.

Or

What do you understand by free and forced vibrations ? Give two examples of each.

(2)

(Short Answer Type Questions)

3 eac

3. An oscillating simple pendulum has the amplitude of oscillation as 0.03 m and the time period 2 S. Find the maximum speed during the oscillation.
4. Define Young's modulus of elasticity. Give its unit and dimensional formula.

(Very Short Answer Type Questions)

2 each

5. Define the following :
 - (i) Volumetric strain
 - (ii) Shearing strain
6. State Zeroth Law of thermodynamics with a suitable diagram.
7. Define reversible process and irreversible process.
8. From Kinetic theory of gases, explain Kinetic Interpretation of temperature.

(Multiple Choice Questions)

1 each

9. Choose the correct answer :
 - (i) In damped oscillations, the amplitude of the oscillations :
 - (a) Increases with time
 - (b) Decreases with time
 - (c) Remains same
 - (d) None of these

(3)

(ii) The Root Mean Square velocity of a perfect gas is :

(a) $\sqrt{\frac{3RT}{M}}$

(b) $\sqrt{3RTM}$

(c) \sqrt{RTM}

(d) $\sqrt{\frac{M}{RT}}$

(iii) The pressure (P) exerted by a gas enclosed in a container is :

(a) $\frac{1}{3} \frac{M}{V} c^2$

(b) $\frac{1}{3} \frac{M}{u} c^2$

(c) $\frac{1}{3} \frac{M}{E} c^2$

(d) None of these
