HST2KLNXI

14009

PHYSICS

(Term-2nd)

Time : 2½ Hours]   **[Maximum Marks : 40**

Note :   In case of failures/re-appear cases and fresh private candidates; i.e. candidates appearing for the first time after having passed Secondary School Examination, marks secured out of 40 shall be raised proportionately as if obtained out of 60.

(Long Answer Type Questions)

1.   What do you mean by acceleration due to gravity ? How does acceleration due to gravity vary with altitude ?

Or

Define gravitational potential energy. Derive an expression for gravitational potential energy.   5

2.   State and explain three modes of transfer of heat.

Or

Explain coefficient of viscosity. Give its units and dimensional formula.   5

3. Define S.H.M. Derive expressions for displacement, velocity and acceleration for a particle executing S.H.M.

Or

What is Simple Pendulum ? Derive the relation for time period of simple pendulum executing S.H.M.   5

4. Derive an expression for pressure exerted by an ideal gas.

Or

From kinetic theory of gases, explain kinetic interpretation of temperature and absolute zero.   5

(Short Answer .Type Questions)

5. What should be the maximum average velocity of water in a tube of diameter 2 cm. So that the flow is laminar ? The viscosity of water is 10^{-3} $Nm^{-2}s^{-1}$.   3

6. State and explain first law of thermodynamics.   3

7. What are reversible and irreversible processes ?   3

8. Derive an expression for apparent frequency when listener is in motion and source is at rest.   3

9. Distinguish between transverse and longitudinal wave motion.   3

(Very Short Answer Type Questions)

10. What is the time period of geo-stationary satellite ?

11. Define degrees of freedom.

12. Define the terms node and antinode.

(3)

(Multiple Choice Questions)

Choose the correct/most appropriate answer and write it in your answer-book :

13. If the earth were to spin faster, then acceleration due to gravity at the poles :

(a) Increases

(b) Decreases

(c) Depends on how much fast it spins

(d) Remains the same

14. Degree of freedom of a monoatomic gas molecule is :

(a) 3   (b) 5

(c) 6   (d) 7