SILVER HILLS PUBLIC SCHOOL
Affiliated to CBSE, Delhi, Affiliation No. 930433, Code No. 75439
Paroppady, Marikunnu P O, Kozhikode – 673012 Kerala, India

CT 3 PHYSICS

Name			**Subject : Physics**	**Maximum Marks: 25**
Class : XI	**Section:**	**Roll No.**	**Duration: 1 Hrs.**	**Date:**

General Instructions:

The question paper contains five sections.
Section A has 4 questions of one mark each.
Section B has 6 questions of two marks each.
Section C has 3 questions of 3 marks each.

SECTION A

1. Velocity of a particle executing simple harmonic motion is
a) constant b) maximum at extremes c) minimum at extremes d) minimum at mean position.
2. Acceleration of a particle executing simple harmonic motion is
a) constant b) maximum at extremes c) minimum at extremes d) minimum at mean position.
3. The rotational analogue of mass is
a) torque b) angular momentum c) moment of inertia d) angular acceleration
4. Time period of seconds pendulum is
a) More than 2 S b) less than 2 S c) 0.333 S d) None of these

SECTION B

5. If two particles of mass M1 and M2 move with velocity is V1 and V2 towards each other on a smooth horizontal table what is the velocity of their centre of mass?

6. The kinetic energy of a particle vibrating in simple harmonic motion is 4J when it a passes through the mean position. If the mass of the particle is 2kilogram and amplitude is 1 m, calculate to the time period.

7. How does the ice skate very her angular speed by stretching her arms and legs?

8 .Derive an expression for the torque on the body, also determine when the value of torque is the maximum.

9. Draw a graph showing the variation of kinetic energy and potential energy of a body executing SHM with the distance from the mean position. Write the expression for total energy.

10 . Show that, in the case of a body in SHM, maximum potential energy is equal to maximum kinetic energy.

SECTION C

11. Derive an expression for the time period of a simple pendulum.

12. A body of mass 5 kg execute SHM of amplitude of 0.5 m. If the force constant is 100 Newton per metre calculate total energy, maximum potential energy, maximum kinetic energy and time period.

13. Derive the three equations of rotation motion and a constant angular acceleration from the first principle