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CLASS- XI
TEST- OSCILLATIONS

Time Allowed: 1 hour.

M. M 20

Date: 16/5/2020

1. The displacement y in cm is given in terms of time t second by the equation $y = 3 \sin 314t + 4 \cos 314t$, the amplitude of SHM is. (1)
 - a) 3 cm
 - b) 4 cm
 - c) 5 cm
 - d) 7 cm

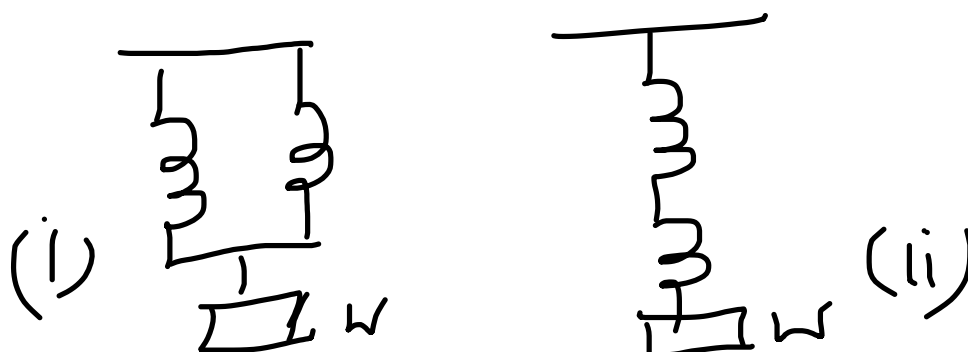
2. Which of the following is the necessary and sufficient condition for SHM? (1)
 - a) Constant period
 - b) Constant acceleration
 - c) Proportionality between acceleration and displacement from equilibrium position
 - d) Proportionality between restoring force and displacement from equilibrium position

3. The total energy of a particle performing SHM depends on (1)
 - a) K, A, m
 - b) K, A
 - c) K, A, x
 - d) K, x

4. Define force constant of a spring. Give its SI unit and dimensional formula. (2)

5. What will be the effect on the time period, if the amplitude of a simple pendulum increases? (2)

6. Two identical springs have the same force constant of 147 N/m . Calculate the net force constant. (2)



7. What is a simple pendulum? Derive an expression of time period of a simple pendulum. (3)
8. A particle executes SHM of amplitude a . At what distance from the mean position is its kinetic energy equal to its potential energy? (3)
9. Explain the relation in phase between displacement, velocity and acceleration in SHM, graphically as well as theoretically. (5)