Roll No.						

Total No. of Pages: 02

Total No. of Questions: 07

B.Sc. (CS) (Sem. - 2)

THEORY OF WAVES & OSCILLATIONS

M Code: 71509

Subject Code: BCS-204

Date of Examination : 15-12-2022

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

- 1. Write briefly:
 - a) What are free and natural oscillations?
 - b) What is damping? On what factors the damping depends?
 - c) Discuss quality factor of a forced oscillator.
 - d) What do you mean by logarithmic decrement?
 - e) What is meant by characteristic impedance?
 - f) Define the terms wave velocity and group velocity.
 - g) What is a transverse wave? Give an example.
 - h) Define normal mode and normal coordinates.
 - i) What is a compound pendulum? Give its time period.
 - j) What is a periodic motion?

SECTION-B

- 2. What is a tortional pendulum? Deduce an expression for its time period.
- 3. Discuss the inductance coupling of electrical oscillator.
- 4. Obtain an expression for the energy of a vibrating string.
- 5. Determine the normal modes for a coupled system of two identical pendulums.
- 6. Derive the wave equation for transverse wave in a string.
- 7. Construct and explain the lissajous figures if two simple harmonic motions at right angle to each other acting simultaneously on a particle and having time period in the ratio 1: 2

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.