



B-003-0491006

Seat No. _____

B. Sc. / M. Sc. (Sem. I) (CBCS) Examination

March - 2021

Paper - IV : Applied Physics - II

(New Course)

Faculty Code : 003

Subject Code : 0491006

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction : Answer any five of the following questions.

- 1** Attempt short questions : (Two marks each) **14**
- (1) Classify sound based on frequency.
 - (2) What is an organ pipe? How does it produce sound?
 - (3) Define Beats.
 - (4) State the principle of superposition of sound wave.
 - (5) Define Constructive and Destructive interference.
 - (6) Define transverse wave and longitudinal wave.
 - (7) What is Magnetostriction effect?
- 2** Attempt short questions : (Two marks each) **14**
- (1) Define resistivity.
 - (2) What is the Direct current electricity (DC)?
 - (3) Define Magnetic Flux.
 - (4) Define Ohm's law. Write the dimensional formula for ohm's law.
 - (5) Define Electric current. Write down the equation and SI unit of it?
 - (6) In the simple electric circuit, 12 volt battery is joint and the resistance of the resistor is 600 Ohm. How much current flows through the circuit?
 - (7) Write down the factors affecting in the resistance.
- 3** Write the detailed answers of following questions : **14**
- (1) Explain Motional EMF. State Fleming's right hand rule to determine the direction of current induced due to motion of conductor in perpendicular magnetic field.
 - (2) State and explain Lenz's law with energy conservation.

- 4 Write the detailed answers of following questions : **14**
(1) Write a brief note on mutual induction.
(2) What is meant by self-induction? Define self-induction detail.
- 5 Write the detailed answers of following questions : **14**
(1) State and explain Faraday's law of electromagnetic induction.
(2) Describe Eddy current.
- 6 Write the detailed answers of following questions : **14**
(1) Discuss the current density, conductance and conductivity.
(2) Explain construction and working principle of piezoelectric generator.
- 7 Write the detailed answers of following questions : **14**
(1) Write down the application of Ultrasonic in Industry.
(2) What are the Medical application of Ultrasonics.
- 8 Write the detailed answers of following questions : **14**
(1) Write down the Application of Ultrasonic waves for communication.
(2) Discuss the properties of Ultrasonic waves.
- 9 Write the detailed answers of following questions : **14**
(1) Explain the classification of substances according to their resistivity.
(2) Describe the formation of stationary wave in closed organ pipe. Explain how nodes and antinodes are formed ?
- 10 Write the detailed answers of following questions : **14**
(1) Discuss the laws of transverse vibrations of a string.
(2) Describe and explain: Melde's experiment for longitudinal arrangement.
-