Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (Biotechnology /CE/CSE/Electrical & Electronics Engg./EE/ECE/Electronics & Electrical Engg./IT/ME) (Sem.–1,2)**

# ENGINEERING PHYSICS

**Subject Code : BTPH-101**

**M.Code : 54105**

**Date of Examination : 04-07-22**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

**1. Write briefly :**

a) Define electromagnetic spectrum.

b) Explain Ferro and Ferri magnetism.

c) What is Meissner Effect?

d) What is Stimulated emmision?

e) Write applications of optical fibres.

f) Define relativity.

g) Define group and phase velocities.

h) Define unit cell.

i) Write two applications of nanomaterials.

j) Define the significance of wave function.

## SECTION B

2. Define polarization. Discuss in detail the different types of polarization. (8)

3. Explain magnetostriction and its application in production of ultrasonic waves. (8)

4. a) Describe Bragg's spectrometer. (6)

   b) The X-ray of wavelength 0.154 nm were obtained using Molybdenum BCC metal as target. The diffraction was obtained from the {200} planes at 20 = 58.535°. Find lattice constant for Mo. (2)

5. What is solid state laser? Describe the principle, construction and working of Ruby laser. (8)

## SECTION C

6. What is an optical fiber? Explain the terms acceptance angle and Numerical Aperture. (8)

7. Describe Michelson-Morley experiment. (8)

8. Develop time-dependent and time-independent Schrodinger wave equations. (8)

9. Discuss how is the synthesis of nanomaterials done using a ball-milling technique. Discuss the underlying difficulties as well. (8)



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