GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)
(Affiliated to Andhra University, Visakhapatnam)
I B.Tech. - I Semester Regular Examinations, December / January – 2025
ENGINEERING PHYSICS
(Common to ECE, EEE, CSE (AI&ML))
1. All questions carry equal marks
2. Must answer all parts of the question at one place

Time: 3Hrs.   **Max Marks: 70**

UNIT-I

1. a. Explain the interference in thin films due to reflected light and obtain the conditions for maxima and minima.   [8M]
    b. What is Brewster's law? Show that reflected and refracted rays are perpendicular to each other at the polarizing angle.   [6M]

OR

2. a. Obtain the expression for the intensity due to Fraunhofer's diffraction at single slit.   [8M]
    b. Describe the construction and working of Nicol's prism.   [6M]

UNIT-II

3. a. State and explain second law of thermodynamics.   [8M]
    b. Explain Entropy and disorder.   [6M]

OR

4. a. State and explain Carnot's theorem.   [8M]
    b. Explain first law of thermodynamics.   [6M]

UNIT-III

5. a. Obtain the expression for the electric field due to a solid charged sphere using Gauss's law.
                                                                                     [7M]
    b. Derive the expression for the magnetic field due to a current carrying conductor using Biot-Savart law.   [7M]

OR

6. a. Explain Faraday's law of electromagnetic induction.   [7M]
    b. Write the Maxwell equations in differential and integral forms.   [7M]

UNIT-IV

7. a.   Describe the construction and working of Ruby laser.   [8M]
    b.   Explain different types of losses in optical fibres.   [6M]

OR

8. a.   Explain the propagation of light through an optical fibre and obtain the expression for its
         numerical aperture.   [8M]
    b.   Distinguish between spontaneous emission and stimulated emission.   [6M]

UNIT-V

9. a.   Apply the Schrodinger's equation to a particle in a one-dimensional box and obtain the energy
         values and wave function.   [8M]
    b.   Distinguish between qubits and classical bits.   [6M]

OR

10. a.   Obtain the expression for the wavelength of matter waves (de-Broglie's relation) and explain
         physical significance of wave function.   [8M]
    b.   Explain the basic idea of quantum teleportation.   [6M]