

I B. Tech I Semester Supplementary Examinations, November - 2020**ENGINEERING PHYSICS**

(Com. to ECE, EEE, EIE, Bio-Tech, E Com E, Agri E)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)
 2. Answering the question in **Part-A** is Compulsory
 3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) State the superposition principle. (3M)
- b) Explain the characteristic of laser. (4M)
- c) Write short notes on SQUIDS. (4M)
- d) State and explain Eyring's formula. (3M)
- e) What is Fermi factor? Discuss its physical importance. (4M)
- f) Explain the electronic transport mechanism of an LED. (4M)

PART -B

2. a) What is interference of light? Prove that the diameter of the nth dark ring in a Newton's ring set-up is directly proportional to the square root of the ring number. (10M)
- b) Differentiate between Fraunhofer and Fresnel diffraction. (6M)
3. a) Obtain the relations between the edge of the unit cell and atomic radius for the BCC and FCC lattices. (10M)
- b) What is the principle behind the functioning of an optical fibre? (6M)
4. a) Draw and explain B-H curve for a ferromagnetic material and identify the retentivity and the coercive field on the curve. (10M)
- b) Write down applications of superconductors. (6M)
5. a) State and explain Maxwell's equations and express them in differential form as well as in integral form. (10M)
- b) State and explain Sabine's formula for reverberation time of a hall. (6M)
6. a) Explain Fermi-Dirac distribution function. Plot this function for various temperatures including 0K. (10M)
- b) Define effective mass of an electron and derive an expression for it. (6M)
7. a) Explain Hall effect and derive an expression for Hall coefficient in semiconductors. (10M)
- b) Discuss applications of Hall effect. (6M)