R17 Regulation *Subject code:1B1AC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech I Year I Semester Supplementary Examinations, March/April 2023

ENGINEERING PHYSICS

(Common to CE & ME)

Maximum Marks: 70 Date:10.04.2023 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

Answer *All* the following Questions 10x2M = 20M

1. Write about coherent sources?
2. What is the diffraction of light?
3. Define Brewster's law.
4. Write the characteristics of LASER.
5. Define the 'attenuation' in optical fibers.
6. Write about intermodal dispersion.
7. Define Unit cell.
8. Write the four types of Bravias lattices.
9. What is the use of Burger's vector.
10. What are called as volume defects?

Part –B

Answer all the questions 5X10M=50M

11. Describe how to produce Newton's rings and obtain the condition for obtaining bright and dark rings. [10]

(or)

12. Discuss the Fraunhoffer diffraction due to single slit. Obtain the conditions for maxima and minima. [10]

13. Explain the working of a Nicol prism as a polarizer and analyzer. [10]

(or)

14. What is plane diffraction grating? Obtain an equation to find the wavelength of light using plane diffraction grating. What are the advantages of increasing number of lines in a grating? [10]

15. Discuss the classification of optical fibers based on their refractive index profile. [10]

(or)

16. Explain the working of an optical fiber communication system. [10]

17. Explain Silver has FCC structure and its atomic radius is 1.441Å. Find the spacing of (220) planes. [10]

(or)

18. Derive the relation between interplanar distance and Miller indices of the planes of a cubic crystal. [10]

19. Explain the procedure involved in powder method of analyzing polycrystals using X-ray diffraction technique. [10]

(or)

20. Explain the point defects and line dislocations in detail, with necessary diagrams. [10]