



R18 Regulation

Subject Code:2B1AB

TKR COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous & Accredited with NAAC 'A' Grade)

B.Tech I Semester Supplementary Examinations, September 2023

ENGINEERING PHYSICS

(Common to CE & ME)

Max. Marks: 70

Date:30.09.2023 Duration: 3 hrs

NOTE: This question paper contains two parts A&B. Part A is compulsory which carries 20 marks. Answer all questions in part A. Part B consists of 5 units. Answer any one full question from each unit Each question carries 10 marks and may have a,b,c

PART A

All the following questions carry equal marks

10x2M=20Marks

1. Define vector and scalar quantities with examples.
2. Deduce the complex notation for forced oscillations.
3. Write two similarities between electrical and mechanical harmonic oscillators
4. Write about quality factor?
5. Define sound absorption coefficient of a material and write its unit.
6. Define acoustic waves and standing sound waves.
7. What are coherent sources.
8. Define diffraction.
9. Write the components of laser.
10. Write about the structure of optical fibre.

PART B

Answer all the following questions

10Mx5=50Marks

11. Derive the equation of motion in polar co-ordinates. [10]
OR
12. Describe the transformation of scalars and vectors under rotation. [10]
13. What is an electrical harmonic oscillator? Obtain an expression the Frequency of oscillators. [10]
OR
14. Derive the equation of motion of a simple harmonic oscillator and its total energy. [10]
15. (a) Discuss the modes of vibration of a stretched string clamped at both ends. [5]
(b) Explain the laws of transverse vibrations of a string. [5]
OR
16. Derive Sabine's formula for reverberation time. [10]
17. (a) Explain the formation of Newton's rings. [5]
(b) Describe the construction and working of a Mach Zehnder Interferometer? [5]
OR
18. Derive equation of Fraunhofer diffraction due to Single slit. [10]

19. (a) With the help of suitable diagram, Explain the construction and working of He –Ne laser. [7]
(b) Write the characteristics of laser. [3]

OR

20. (a) Distinguish between light propagation in step index optical fiber and graded Index optical fiber. [5]
(b) Describe the basic elements of a fiber optics communication system with the help of block diagram. [5]