



Regulation R18

Subject code:2B1AB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

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

ENGINEERING PHYSICS

(Common to CE & ME)

Maximum Marks: 70

Date:06.04.2023 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

All the following questions carry equal marks

10x2M=20Marks

1. Write the transformation of scalars under rotation.
2. State the D'Alembert's principle
3. What is the simple harmonic motion.
4. Write about quality factor?
5. Define sound absorption coefficient of a material and write its units.
6. Define acoustic waves and standing sound waves.
7. What are coherent sources.
8. Define Fraunhofer diffraction?
9. What is the coherence?
10. Write about total internal reflection.

PART B

Answer all the following questions

5X10M=50Marks

11. What are the different types of forces? Explain in detail. [10]

OR

12. Derive the equations of motion in spherical co-ordinates? [10]
13. What is an electrical harmonic oscillator? Obtain an expression the frequency of oscillators. [10]

OR

14. (a) Derive the equation of motion of a simple harmonic oscillator and its total energy. [5]
(b) Describe the power absorbed by oscillator? [5]
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 the formula for absorption co-efficient by two methods. [10]

17. Explain the formation of Newton's rings in reflected monochromatic light. Explain briefly why Newton's rings are circular. [10]

OR

18. Derive equation of Fraunhofer diffraction due to N- slit. [10]

19. With necessary theory and energy level diagram, explain the construction and working of a He – Ne gas laser. [10]

OR

20. (a) Explain about signal attenuation in optical fibre. [5]

(b) Describe the basic elements of a fibre optic communication system with block diagram. [5]