23247

Velammal College of Engineering and Technology
Viraganoor, Madurai – 625 009
(Autonomous)

B.E. End Semester Examinations November 2023

First Semester
Time : 3 Hours

Regulation 2021
Max. Marks 100

21PH101 - Engineering Physics
(Common to All Branches)

Answer ALL Questions
PART-A (10 x 2 = 20 Marks)

1. How center of mass is determined for rigid body?

2. Briefly give a note on gyroscope.

3. Give the properties of electromagnetic waves.

4. What is called cell – phone reception?

5. Define Doppler effect.

6. Write down the applications of lasers in industry.

7. Give the physical significance of wave function.

8. State Compton effect.

9. What is quantum tunneling?

10. Mention examples for harmonic oscillator.

Part – B (5 x 16 = 80)

11. a) Explain in detail about parallel axis theorem and perpendicular axis theorem.

OR

b) Explain how the torsion pendulum is used to find the rigidity modulus of given wire.

12. a) Derive an expression for plane electromagnetic wave in free space.

OR

b) Deduce the Maxwell's equation in differential and integral form.

13. a) Solve an expression to find the thickness of a thin object using air-wedge.

OR

b) Demonstrate the construction and working of the Nd:YAG laser.

14. a) Obtain Schrodinger's time dependent and independent wave equation.

OR

b) Find the Eigen value and Eigen function for the particle in one dimensional box.

15. a) Discuss the band theory of solids and classify the material as conductor, insulator and semi conductor.

OR

b) Explain the principle, construction and working of Tunneling microscope with neat diagram.