

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(5 Pages)

Reg. No:

Question Code No: 25001209

Course Code: 24UEPH21

UG Degree - End Semester Examinations, November 2025

Second Semester

PHYSICS ALLIED

Allied Physics II

(For those who joined in July 2024 onwards)

Time : 3Hours

Maximum : 75 Marks

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Colours of thin film is due to
 - (a) Interference
 - (b) Diffraction
 - (c) Reflection
 - (d) Refraction
2. Which crystal is used for double refraction?
 - (a) Mica
 - (b) Glass
 - (c) Calcite
 - (d) Quartz

- (b) Laws of physics are the same in all inertial frames
- (c) Time is absolute
- (d) Mass of a particle is independent of its velocity

9. Energy band gap for Ge is

- (a) 0.3 eV
- (b) 0.7 eV
- (c) 1.1 eV
- (d) 0.6 eV

10. Function of rectifier is to convert

- (a) dc to ac
- (b) ac to dc
- (c) ac to ac
- (d) dc to dc

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Determine the diameter of a thin wire using an air wedge method.

(OR)

(b) State and explain Brewster's law.

12. (a) State and explain Pauli's exclusion principle.

(OR)

(b) Describe solar cells.

13. (a) Explain the liquid drop model of the nucleus.

(OR)

(b) Define the term radioactivity. Derive an expression for half-life period and mean life period of a radioactive nuclei.

14. (a) Give the postulates of special theory of relativity.

(OR)

(b) Explain time dilation.

15. (a) Explain current-voltage characteristics of diode.

(OR)

(b) Describe the working of full wave bridge rectifier.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

16. (a) Determine the wavelength of light by using plane transmission grating.

(OR)

(b) Define optical activity and determine the optical activity of sugar solution.

17. (a) Describe the vector atom model.

(OR)

(b) Derive Einstein's photo electric equation.

18. (a) Distinguish between nuclear fission and nuclear fusion.

(OR)

(b) Describe the uses of radioisotopes.

19. (a) Explain frame of reference and derive Galilean transformation of equation.

(OR)

(b) Derive Lorentz transformation equations.

20. (a) Explain the working of npn transistor.

(OR)

(b) Describe the I-V characteristics of Zener diode.