



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2023 Admission
I Semester Final Examination - February 2024

Sacs.1102

Engineering Physics (2+1)

Marks:50
Time: 2 hours

- I State True or False (10x1=10)**
1. Raman spectroscopy can give rapidly characterize the chemical composition and structure of a sample.
 2. Light amplification by stimulated emission of radiation is called LASER.
 3. Optical fiber is used in innovations in Water Optimization and Agriculture.
- Answer the following**
4. Define Stark effect.
 5. Define Raman effect.
 6. Mention any two application of Nanotechnology.
 7. On what phenomenon the working principle of laser is based?
 8. Define Isotope effect.
 9. Define Spontaneous emission.
 10. Define thin film.
- II Write short notes on ANY FIVE of the following (5x2=10)**
1. How the Newton's rings formed?
 2. What are Interference filters?
 3. What is ruby maser?
 4. Mention any two nano devices.
 5. What is the Principles of Holography?
 6. What are the characteristics of optical fiber?
 7. What is the principle of SQUID?
- III Answer ANY FIVE of the following (5x4=20)**
1. Explain briefly High temperature superconductor.
 2. Explain Intrinsic and Extrinsic semiconductors with two examples each.
 3. Distinguish between metals, insulators and semiconductors.
 4. Classify the properties of Dia, Para and Ferromagnetic magnetism.
 5. Explain the concept of population inversion as applied to laser.
 6. Describe the recording and reconstruction processes in Holography with the help of suitable diagrams.
 7. Explain Meissner effect.
- IV Write an essay on ANY ONE of the following (1x10=10)**
1. Develop an expression for energy density at thermal equilibrium using Einstein's A and B coefficients.
 2. Explain the construction and working of Ruby Laser with energy level diagram.
