



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2022 Admission
I Semester Final Examination - March 2023

Sacs.1102

Engineering Physics (2+1)

Marks:50
Time: 2 hours

- I State True or False (10x1=10)**
1. Interference in thin films takes place due to reflected and transmitted light.
 2. The magnetic susceptibility of a diamagnetic material is always negative.
 3. The solids are classified based on their band structures.
 4. LASERS work on the basis of spontaneous emission of radiation.
 5. Optical fibers work on the principle of polarization.
- Answer the following**
6. What is Zeeman Effect?
- Define the following**
7. Law of mass action of semiconductors
 8. Superconductivity
 9. Holography
 10. Nanomaterials
- II Write short notes on ANY FIVE of the following (5x2=10)**
1. Write the condition for bright and dark interference fringes in Newton's rings experiment.
 2. Give a brief description about Zeeman effect.
 3. Distinguish between metals and semiconductors.
 4. Give one each example for Type I and Type II superconductors.
 5. Differentiate between spontaneous and stimulated radiation in a matter.
 6. Write Einstein's coefficients A and B.
 7. Mention any two applications of nanomaterials in agriculture.
- III Answer ANY FIVE of the following (5x4=20)**
1. Describe Langevin's theory of paramagnetism.
 2. Explain Stark effect and Paschen back effect.
 3. Explain intrinsic and extrinsic semiconductors.
 4. Explain BCS theory of superconductivity.
 5. Explain the construction of He-Ne laser with a suitable diagram.
 6. Explain technique of recording a hologram.
 7. Discuss the advantages of application of nanotechnology in drug delivery system.
- IV Write an essay on ANY ONE of the following (1x10=10)**
1. Explain the construction and working of a Ruby Laser with a suitable energy level diagram.
 2. Discuss the optical fiber communication system with a suitable block diagram.
