KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 Previous Admission

I st Semester Final Examination- February-2015

Cat. No: Basc.1103

Marks: 80

Title: Engineering Physics (2+1)

Time: 3 hours

I. Answer all questions (10x1=10 Marks)

1. Define Superconductivity.
2. State Curie Wess law.
3. Write expression for numerical aperture of optical fibre.
4. Brief ,Meissner effect
5. What do you mean by critical magnetic field?

    State True or False

6. Coherent light sources produce interference.
7. Light travels with constant speed in all medium.

    Fill up the blanks

8. The fundamental unit in a grating is called………………
9. The tangential force acting on the surface of a liquid is known as ……………
10. When …………….. of a crystal matches with applied frequency , resonance is produced.

II. Answer any ten questions (10x3=30 Marks)

1. In Newton's rings experiment the center spot is always dark. Why?
2. Distinguish between Fresnel and Fresnel and Fraunhoffer diffraction.
3. Briefly describe any three applications of laser in the field of food engineering.
4. Explain the principle of Hologram with a neat diagram.
5. Compare Type I and Type II superconductors.
6. The band gap of Ga As is 1.44V.Calculate the wavelength when it is forward biased.
7. Briefly explain Zeeman effect and Stark effect.
8. What are the properties of super conductors?
9. Explain viscosity and derive an expression for viscous force
10. Write a short note on optical pumping and optical cavity.
11. Describe stream line and turbulent flow in fluid flow.
12. What are ferromagnetic domains? How are their existence explained?

III   **Answer any six questions (6x5=30 Marks)**

1. Derive grating law and explain white light diffraction
2. Describe diode laser with a neat diagram.
3. Discuss optical fibre communication system with the help of a block diagram. What are the transmission losses in OFC system?
4. Explain law of mass action.
5. Derive an expression for Fermi level in a P-type semi conductor.
6. Explain SQIUD and its applications.
7. Derive expression for resolving and dispersive power of a grating.
8. How optical fibre is used in laparoscopic surgeries?

IV   **Answer any one question (1x10=10 marks)**

1. Explain the structure of OFC. What are the different modes used in the OFC system? Derive an expression for numerical aperture, acceptance angle. Explain the transmission losses in OFC system.
2. Explain the band theory of solids. Discuss with necessary theory, Fermi level shifting of N-type and P-type semi conductors.