

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2014 Admission

I<sup>st</sup> Semester Final Examination- February -2015

Cat. No: Basc.1103

Title: Engineering Physics (2+1)

Marks: 50.00

Time: 2 hours

## I Define

(10 x 1=10)

1. Define Superconductivity
2. State Curie Weiss law
3. Write expression for numerical aperture of optical fiber
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 produce

## II Write short notes on any FIVE questions

(5 x 2=10)

1. In Newton's rings experiment the center spot is always dark. Why
2. Briefly describe any three applications of laser in the field of food engineering
3. Compare type I and Type II superconductors
4. The band gap of Ga As is 1.44V. Calculate weave length when it is forward biased
5. Briefly explain Zeeman effect and Stark effect
6. Explain viscosity and derive an expression for viscous force
7. Describe stream line and turbulent flow in fluid flow

## III Write short notes on any FIVE questions

(5 x 4=20)

1. Derive grating law and explain white light diffraction
2. Describe diode laser with a neat diagram
3. Discuss optical fiber 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 SQUID and its application
7. Derive expression for resolving and dispersive power of a grating

**IV Write an essay on any ONE**

**(1 x 10=10)**

1. Explain the structure of OFC .What are the different modes used in the OFC system. Derive 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

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