

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food .Engg) 2013 Admission  
I<sup>st</sup> Semester Final Examination-January 2013

Cat. No: Basc.1103

Title: Engineering Physics (2+1)

Marks: 50

Time: 2hours

## I Answer all questions

(10 x 1=10)

1. What is meant by metastable state
2. Define critical temperature in super conductivity
3. Define intrinsic semiconductor
4. Why is diffraction
5. Write down the expression for numerical aperture of optical fiber

## Match the following

- |                 |                             |
|-----------------|-----------------------------|
| 6. Grafting     | - Metastable state          |
| 7. Doping       | - Interference              |
| 8. Holography   | - Total internal reflection |
| 9. Laser        | - Diffraction               |
| 10. Optic fiber | - Critical temperature      |
|                 | - Extrinsic semiconductors  |

## II Write short note on any FIVE questions

(5 x 2=10)

1. Explain Paschen Back effect
2. What is meant by Stock's and antistock's line
3. Explain about Type-II superconductor
4. Explain about isotop effect
5. Briefly explain about high temperature superconductors
6. Explain about SQUID and its use
7. Explain stark effect
8. Explain about doping level

## III Answer any FIVE questions

(5 x 4=20)

1. What is a plane tyranmission grating and derive grating equation
2. Obtain an expression for resolving power of grating
3. Differentiate between Diamagnetic and paramaganetism
4. What are the basic principles in holography
5. If an optic fiber has a core of refractive index 1.52 and cladding of refractive index 1.42, Calculate numerical aperture and acceptance angle

6. What is highest order of spectrum ,which may be observed with monochromatic light of wavelength  $5890 \text{ \AA}$  by means of a diffraction grating with 6000 lines/cm
7. What are the advantages of optic fiber

**IV Answer any ONE question**

**(10 x 1=10)**

1. Discuss with necessary theory, the formation of Newton's rings and explain how the refractive index of a liquid can be determined
2. Explain Einstein's theory of spontaneous emission and stimulated emission. Describe the construction and working of Ruby laser

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