

Total No. of Questions : 10] [Total No. of Printed Pages : 3

Roll No.

BE-201(GS)

B. E. (First/Second Semester)

EXAMINATION, June, 2012

(Grading System)

(Common for all Branches)

ENGINEERING PHYSICS

[BE-201(GS)]

Time : Three Hours

Maximum Marks : 70

Minimum Pass Marks : 22 (D Grade)

Note : There are total five Units and two questions in each Unit. i. e. total *ten* questions in this question paper. Attempt any *five* questions and *one* question from each Unit. All questions carry equal marks.

Unit-I

1. State and explain Heisenberg uncertainty principle. Illustrate it with the help of an experiment.

Or

2. What is Compton Effect ? Explaining the Compton shift expression, discuss the various possibilities of X-ray scattering.

Unit-II

3. Describe Michelson's interferometer and how will you measure small difference in wavelengths of two waves with Michelson's interferometer. Calculate the distance between the two successive positions of a movable mirror of Michelson's interferometer giving best fringes in the case of sodium light having lines of wavelength 5890 \AA and 5896 \AA .

Or

4. Explain Rayleigh criterion of resolving power of optical instrument. Derive the expression for resolving power of diffraction grating. Calculate the number of lines per cm. on a grating which will resolve the sodium light of wavelength 5890 \AA in the second and first order.

Unit-III

5. Describe the construction and working of a Betatron. Explain Betatron condition.

Or

6. Discuss the construction and working of a Bainbridge mass spectrograph.

Unit-IV

7. What is Hall Effect ? Show that Hall coefficient is independent of the applied magnetic field and is inversely proportional to current density and electronic charge.

Or

8. What is Zener Diode ? Draw the equivalent circuit of an ideal and actual Zener diode. What are its uses ?

Unit-V

9. Describe construction and working of Ruby laser with the help of a necessary diagram.

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Or

10. What are optical fibers ? Explain how glass fiber guides light from one end to the other. Define acceptance angle of an optical fiber.

A glass clad fiber is made with core glass of refractive index 1.5 and the cladding is doped to give fractional index difference of 0.0005. Find the acceptance angle of such fiber.