Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2011

(C.C.S.S.)

Physics—Complementary

PH 3C 05—OPTICS, LASER, ELECTRONICS AND COMMUNICATION

ime : Three Hours Maximum Weightage : 30

I. Answer *all* the twelve questions :

1 Colours of thin film are explained using the phenomenon _____

2 In Fresnel diffraction the source and screen are at _____ distances from the aperture.

3 Write down the expression for fringe width of interference pattern.

4 The phenomenon of superimposition of two or more waves to lose their identity is called _____

5 Write down the equation for resolving power of a grating.

6 When an ordinary light is passed through a polaroid, what kind of light is obtained ?

7 The essential parts of an astronomical telescope are _____ and ____

8 A Zener diode is working in _____ bias.

9 A device which converts a.c. into d.c. is called _____

10 A NOR gate is obtained by the series combination of an OR gate and _____ gate.

11 In a full wave rectifier how many diodes are used ?

12 What is the condition for total internal reflection ?

(12 = 3 weightage)

II. Answer *all* the nine questions :

13 State laws of refraction.

14 What is meant by distructive interference ?

15 What are coherent sources ?

16 Mention the parts of a spectrometer.

17 Write down an expression for magnifying power of a telescope.

18 What is optical activity ?

19 Draw the ray diagram for the image formation in a Galilean telescope.

20 Name the three possible transistor connections.

21 What is an analyser ?

x 1 = 9 weightage)

Turn over

III. Answer any *five* from seven questions :

22 Distinguish between Fresnel and Fraunhofer diffractions.

23 How Newtons rings are formed ?

24 What will be the Brewster angle for a glass slab (n = 1.5) immersed in water (n = 4/3) ?

25 Discuss relative advantages and disadvantages of Huygen's and Ramsden's eyepieces.

26 Explain Huygen's principle.

27 Write down the characteristics of forward and reverse biasing.

28 Write a note on different kinds of filter circuits with examples.

(5 x 2 = 10 weighta

IV. Answer any *two* from three questions :

29 Describe with theory Young's experiment to determine the wavelength of a monochroma source of light.

30 Briefly explain the working of an astronomical telescope.

31 Explain LC and RC oscillators with neat diagram, explain the circuit operation of a Hartl oscillator.

(2 x 4 = 8 weighta