

**June 2017**

**Bachelor of Computer Application (BCA) Examination**

**II Semester**

**Physics-II**

Time 3 Hours]

[Max. Marks 40

*Note : Attempt all the five questions. Solve any two parts from each question. All questions carry equal marks.*

1. (a) State and explain Maxwells equations.  
(b) Describe reflection of radiowaves from ionosphere.  
(c) What is a coaxial cable ? How it is useful in the process of transmission ?
2. (a) State the principle of super position. Find the conditions of constructive and destructive interference.  
(b) Prove that the diameter of Newtons bright ring is directly proportional to square root of odd number.  
(c) Explain the construction and working of Michelsons interferometer.
3. (a) How is plane wave front divided in to the half period zones.  
(b) Explain the construction and working of a zone plate.  
(c) A grating has 4000 lines per cm. Find (i) the maximum wavelength measurable by the grating (ii) the number of order seen with white light. You may need wave length  $\sim 4000 - 8000 \text{ \AA}$ .
4. (a) Explain the phenomenon of double refraction in uni-axial crystal on the basis of Huygen's principle.  
(b) What are quarter and half wave plates ? How are they constructed?  
(c) What is meant by optical rotation ? Explain Fresnels theory of optical rotation.
5. (a) Describe Doppler effect in light. Illustrate with examples.  
(b) Define LASER. How it is different from ordinary source of light ?  
(c) Explain the principle of semiconductor laser. Discuss its any two possible applications.

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