



AC-2975
First Year B. Sc. (Sem. II) Examination
March/April – 2015
Physics for Electronics : Paper - II

Time : 2 Hours]

[Total Marks : 50

Instructions : (1)

<p>नीचे दृष्टावेक निशानीवाणी विगतो उतरवडी पर अवश्य लखवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : FIRST YEAR B. SC. (SEM. II)</p> <p>Name of the Subject : PHYSICS FOR ELECTRONICS : PAPER - II</p> <p>Subject Code No. : 2 9 7 5 Section No. (1, 2,.....): Nil</p>	<p>Seat No. : <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center; width: 100%;">Student's Signature</div>
---	---

- (2) Draw neat and clean diagrams wherever necessary.
- (3) Symbols used in the question paper have their usual meaning.
- (4) Numbers to right indicate full marks of the question.

Constants :

- (1) Speed of light (in vacuum) $C = 3 \times 10^8$ m/sec.
- (2) Planck's constant $h = 6.626 \times 10^{-34}$ JS
- (3) Mass of the electron $m_e = 6.1 \times 10^{-31}$ kg
- (4) Charge of the electron $e = 1.6 \times 10^{-19}$ C
- (5) Boltzmann constant = 8.6×10^{-5} eV/K

- 1 Answer the following questions in short : 14
- (i) What is the difference between photography and holography ?
 - (ii) What is wedge ?
 - (iii) What do you mean by holography ?
 - (iv) Define ampere
 - (v) Define sensitivity of galvanometer.
 - (vi) Define Thomson coefficients.
 - (vii) What is neutral temperature ?

- 2 (a) Obtain the equation for refractive index of liquid using Newton's rings. 8

OR

- (a) Describe advances in Holography and write in detail applications of holography. 8
- (b) A glass wedge of angle 0.01 radian is illuminated by monochromatic light of wavelength 6000 \AA falling normally on it. At what distance from the edge of the wedge will the 8th fringe be observed by reflected light ? 4

OR

- (b) In a Newton's rings experiment, the diameter of 6th ring due to wavelength 5800 \AA in air is 0.42 cm. Find the radius of curvature of the lens. 4

- 3 (a) Explain detail some properties of the magnetic induction B. 8

OR

- (a) Describe the principle, construction and working of D'Arsonval moving coil galvanometer. Show that the current passing through coil is directly proportional to the deflection produced. 8
- (b) A uniform surface charge density σ exist on a sphere of radius "a". Calculate the equivalent dipole moment if the sphere is rotating with angular velocity ω about the diameter. 4

OR

- (b) The coil of a tangent galvanometer has 50 turns of diameter 140 mm. Calculate the reduction factor $B_E = 0.19 \times 10^{-5} \text{ Wb/m}^2$. 4

- 4 Write short notes : (any two) 12
- (a) Seeback effect
- (b) Thomson effect
- (c) Tangent Galvanometer
- (d) Newton's rings with reflected light.