



BF-5321 Seat No. _____
Third Year B. Sc. Examination
June / July- 2014
Physics : Paper - IX
(Old Course)

Time : 3 Hours]

[Total Marks : 70

Instruction: (1) Symbol used have usual meaning.
(2) Figures to the right indicate marks of the question.

- 1.(a) Attempt any one 8
(i) Discuss laplace equation in three dimension
(ii) Explain method of image obtain formula for induced surface charge on surface
- (b) Attempt any three 3
(i) In which circumstances separation of variable method is applicable?
(ii) What is dipole?
(iii) Write laplace equation in Cartesian coordinate in two dimension
(iv) What is method of image?
- (c) Attempt any one. 3
(i) Discuss monopole and dipole in multipole expansion.
(ii) Describe second uniqueness theorem in detail.
- 2.(a) Attempt any one 8
(i) Describe Maxwell equations and obtain missing term in ampere law.
(ii) Discuss faraday's law in detail.
- (b) Attempt any three 3
(i) Write formula of gauss's law ?
(ii) Give interpretation of Maxwell equation $\text{Div } \vec{B} = 0$?
(iii) Write an equation for ampere circuital law.
(iv) What is unit of poynting vector?
- (c) Attempt any one 3
(i) Describe Energy and momentum in electromagnetic wave.

- (ii) Discuss Gauge transformation
- 3.(a) Attempt any one 8
- (i) Discuss V-I Characteristic of solar cell
- (i) Explain essential subsystems in solar energy plant
- (b) Attempt any three 3
- (i) What is hour angle?
- (ii) Define solar constant
- (iii) What is elliptical plane?
- (iv) What is declination angle?
- (c) Attempt any one 3
- (i) Explain merits and limitation of solar energy.
- (ii) Discuss Solar constant.
- 4.(a) Attempt any one 8
- (i) Explain evolution of atmosphere.
- (ii) Explain Earth's Neutral atmosphere
- (b) Attempt any three 3
- (i) Define terrestrial planets
- (ii) What is troposphere?
- (iii) Which planet is biggest in planetary system ?
- (iv) What is meaning of "meso"?
- (c) Attempt any one 3
- (i) Discuss Thermosphere.
- (ii) Discuss Origin of life on earth..
- 5.(a) Attempt any one 8
- (i) Derive formula for electrostatic deflection sensitivity in C.R.O.
- (ii) Explain Principle, construction and working of Michelson interferometer
- (b) Attempt any three 3
- (i) Give full name of C.R.O.
- (ii) What is interference?
- (iii) Define interferometer
- (iv) Resolving power of microscope depends on what?
- (c) Attempt any one 3
- (i) Explain measurement of difference in wavelength using Michelson interferometer
- (ii) Describe magnetic focusing in electron microscope.