S.Y.M.SC.(Electronics) Fourth Semester Old+CBCS

ELE401 / PSELT401-Core-11 : Electromagnetic Fields And Antennas Paper - I

P. Pages : 1 **GUG/W/18/11367**

Time : Three Hours * 1 8 6 2 * Max. Marks :80

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and labelled diagrams wherever necessary.

1. Either

a) State Poynting theorem. Derive an expression for complex Poynting vector. **8**

b) Explain wave equation for conductors and dielectric. **8**

OR

c) Describe EM waves in a homogeneous medium. **8**

d) Derive Maxwell's second equation in differential form. **8**

2. Either

a) Write a note on : **8**
i) Radiation intensity. ii) Half power bandwidth.

b) Explain the effective height of antenna. How does it relates to effective aperture. **8**

OR

c) Explain elliptical and circular polarization in antennas. **8**

d) What is radiation directivity and gain in antennas? Explain. **8**

3. Either

a) Draw a structure of Rhombic antenna and Explain. **8**

b) Discuss the functions of parabolic reflector. **8**

OR

c) Describe the working of Yagi-Uda array with suitable diagram. **8**

d) Explain the structure of horn antenna state its various types. **8**

4. Either

a) Discuss with block diagram use of antenna for terresterial mobile communication. **8**

b) State the types of adaptive base station. Explain any two types of it. **8**

OR

c) State the Reciprocity theorem. Prove that how this theorem is used in antenna. **8**

d) Explain the measurement of following Radiation properties of antenna under test: **8**
i) Directivity Measurement ii) Gain Measurement.

5. a) Explain the interpretation of EXH. **4**

b) Define Resolution and apertures in antennas. **4**

c) Give classification of antenna family. **4**

d) State various types of antennas on cellular handset. **4**

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