

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics Engg.) (2012 & Onwards)  
B.Tech.(ECE/ETE) (2011 Onwards) (Sem.-4)

**ELECTROMAGNETICS & ANTENNAS**

Subject Code : BTEC-403

Paper ID : [A1191]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

1) Write briefly :

- 1) Why waveguide acts as high pass filter?
- 2) What is surface impedance?
- 3) Differentiate between dominant and evanescent mode.
- 4) What is the disadvantage of binomial array?
- 5) Differentiate between near field and far field.
- 6) What is the effect of earth's magnetic field?
- 7) What is Babinet's principle?
- 8) What is distortion less condition?
- 9) What are the applications of smith chart?
- 10) Define wave.

### SECTION-B

- 2) If a wave of 8 GHz is propagating between two parallel conducting plates separated by 5 cm. Check whether  $TE_2$  mode propagates or not.
- 3) State and prove pointing theorem.
- 4) Explain the concept of radiation in single wire, two wire and dipole.
- 5) Explain Dolph-Tschebyscheff array in detail.
- 6) Derive free space equation.

### SECTION-C

- 7) Derive the equations for BWFN and directivity of broad side array.
- 8) For reflection by a perfect insulator, with oblique incidence, derive an expression for reflected field strength to incidental field strength ratio for vertical polarization.
- 9) Explain rectangular and circular aperture antennas in detail.