Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (ECE) (2012 to 2017)/(Electronics & Telecom Engg.)
(Sem.–4)
ELECTROMAGNETICS AND ANTENNAS
Subject Code : BTEC-403
M.Code : 57595

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) **Answer briefly :**

   a. What is the intrinsic impedance of free space?

   b. Differentiate between TE and TM mode.

   c. Define Directive Gain and directivity with respective antenna. An antenna has a directivity of 20 and radiation efficiency of 90%. Compute the gain in dBs.

   d. Define Surface Impedance.

   e. What is distortionless condition?

   f. Define Array Factor.

   g. What are scanning arrays?

   h. Define Critical Frequency.

   i. What is the equation of continuity for steady currents?

   j. Define Far Field.

SECTION-B

2)   Explain ground wave and space wave propagation.

3)   State and prove Poynting Vector Theorem. Also explain the significance of each term.

4)   Discuss the use of low loss RF and UHF transmission lines.

5)   Explain Babinet's principle in detail.

6)   Derive an expression for the current distribution of half wave dipole.

SECTION-C

7)   Describe the salient features of horn antenna. Why it is called Super gain antenna? Explain its construction and working in brief.

8)   Show that a 2GHz signal cannot propagate in the TM1 mode in a parallel conducting plates having a plate separation of 5 cm.

9)   What are the different types of antenna parameters? Explain any four in brief.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.