

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 41223

M.E. DEGREE EXAMINATION, DECEMBER 2014.

First Semester

Communication Systems

14PCM102 – ADVANCED RADIATION SYSTEMS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (5 x 1 = 5 Marks)

1. The two equivalence describe behavior of two different variable of same mathematic form, and then their solution is identical. This is related to which of the following theorem?
(a) Isotropic (b) Duality (c) Omni directional (d) Polarization.
2. Identify the horn resulting when E-plane and H-plane is combined?
(a) Conical (b) Pyramidal (c) Corrugated (d) Practical
3. Which of the following is not an antenna array?
(a) Broad side (b) End Fire (c) Parasitic (d) Refelctor
4. Identify which one of the following is not a feed mechanism for the Microstrip?
(a) Co-axial probe (b) Proximity coupling
(c) Loop coupling (d) Aperture coupling
5. Which of the following is not an antenna measurement parameter?
(a) ridge pattern (b) radiation pattern (c) impedance (d) gain

PART - B (5 x 3 = 15 Marks)

6. State Reciprocity Theorem. Mention its significance in antenna theory.
7. State field equivalence principle. Bring out its importance.
8. Distinguish any three points between Broad side and End fire array.
9. Mention any two advantages and disadvantages of micro strip.
10. Draw and label a Log periodic dipole.

PART - C (5 x 16 = 80 Marks)

11. (a) (i) Using suitable mathematics, Show that the current distribution in a half wave dipole is asymptotic. (8)
(ii) Bring out the salient features of balanced to unbalanced transformer. (8)
Or
(b) (i) Derive the suitable expression for the power radiated by a half wave dipole. (8)
(ii) Write a short note on Base station and mobile phone antenna. (8)
12. (a) Describe the design equations of Horn Antenna .mention its application. (16)
Or
(b) Explain the feed mechanism and the design equations of reflector antenna. (16)
13. (a) (i) Compare the terms 'Beam Width' and 'Band Width' (4)
(ii) Show that the directivity of end fire array is twice that of broad side array. (12)
Or
(b) Explain the design equations of chebyshev distribution and comment how it different from binomial array? (16)
14. (a) (i) Explain the design equations of a Microstrip (12)
(ii) Enumerate the various applications of micro strip antenna. (4)

Or

(b) Using suitable Mathematics, explain the radiation mechanism from a patch. (16)

15. (a) Briefly discuss the various impedance measurement methods for antenna. (16)

Or

(b) (i) Write short notes on Ridge guide and multi loop antenna. (8)

(ii) Explain the principle of antenna test range design. (8)
