[5+5]

Code No: 115DQ and all the Address of vontree

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b)

frequency is 200 MHz.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November - 2015

ANTENNAS AND WAVE PROPAGATION

(Electronics and Communication Engineering)

Max. Marks: 75 Time: 3 hours her ye are respected to a partial partial for the cleanest military are Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries A to verify 10 marks and may have a, b, c as sub questions, it not not not not not the overall ATTURED ACTION OF THE PART - A (25 Marks) *[[.*+4] Distinguish between near field and far fields. 1.a) . Oli pi piet piete Differentia del [3] b) Explain the concept of Retarded vector potential. Write down the characteristics of folded dipole. [2] c) [3] Explain the construction of Yagi-Uda antenna. d) 21 List any five applications of patch antennas. e) MILLOW BROWN V. CG [3] Discuss the features of Micro-strap antennas. f) 121 ::What is a uniform linear afray? g) A linear broad-side array consists of 4 equal isotropic sources with $\lambda/3$ spacing (overall length of array $= \lambda$) Calculate the beam width. [3] [2] Define Wave tilt of Ground Wave. [3] Write a short note on Super Refraction. PART - B (50 Marks) Derive the relation between Directivity and effective aperture of an antenna. 2.a) Find the radiation resistance of a loop antenna of diameter 0.5 m operating at a [5+5]frequency of 1 MHz. OR: Calculate the power gain of a Half wave dipole whose ohmic losses and directive gain 3.a) are 7 ohms and 1.64 respectively. Derive expressions for the components of the radiated field of an alternating current [5+5]element. Discuss in detail about the pyramidal Horn antenna and write down its merits and de-4.a) anerits. b) What are the design considerations of pyramidal Horns? Explain. [5+5]Explain about the operating principle of Helical antenna in Normal and Axial modes. 5.a) Design Yagi-Uda antenna of 6 elements to provide gain of 12 dB if the operating

6.a) b)	Explain in detail Flar sheet and corner reflector antennas in detail. Explain different feed methods used for parabolic reflector antennas. OR	[5+5]
1.	With necessary diagrams explain the principle of operation of Lens antenna discuss its advantages and disadvantages:	[10]
8.a) b) 9.a) b)	Derive an Expression of array factor for an n-element uniform array. Explain in detail about the measurement of radiation pattern with neat diagram OR Explain in detail about the Binomial array and differentiate it with a linear arr Derive an expression for the radiation pattern of a Broadside uniform linear and elements with $\lambda/2$ spacing and obtain its radiation pattern.	ay. array of 4 [5+5
10.a) b)	Find the maximum range of Tropospheric transmission for which the transmitting antenna is 100ft and that of receiving antenna is 50 ft. Derive the relation between Maximum usable frequency (MUF) and skip distants of the control of	5g 人 都就 3.5gg.
11.	Write short notes on: a) Virtual height b) Line of sight propagation c) Effect of earth's curvature. A second of the second and the second of the second	(3 (3+4+3)
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