DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Electronics and Telecommunication Semester :VI

Subject Code & Name: BTETC601 Antennas and Wave Propagation

Max Marks: 60 Date: 11/08/2022 Duration: 3.45 Hrs.

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any one of the following.**		
A)	Prove that total complex power fed into a volume is equal to the algebraic sum of the active power dissipated as heat, plus the reactive power proportional to the difference between time-average magnetic and electric energies stored in the volume, plus the complex power transmitted across the surface enclosed by the volume.		**12**
B)	Prove that Skin Depth $\boldsymbol{\delta = \frac{1}{\alpha} = \frac{1}{\beta}}$		**12**
Q.2	**Discuss in details Any Two points of the following.**		
A)	Radiation Intensity		**6**
B)	Effective Area		**6**
C)	Field of an Antenna		**6**
Q. 3	**Design and explore Any one of the following.**		
A)	Design and array of eight elements spaced at $\lambda/_2$distance		**12**
B)	Explain the concept of pattern multiplication in detail		**12**
Q.4	**Illustrate Any one array of the following.**		
A)	Explain the Dolph - Chebychev method of array synthesis		**12**
B)	Obtain the Tschebyschev Polynomial corresponding to m = 7, 8, 9		**12**
Q. 5	**Design Any two antenna of the following.**		
A)	Rhombic Antenna		**6**
B)	Yagi Uda Antenna		**6**
C)	Log Periodic Antenna		**6**

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