



Reg. No. :

Name :

Sixth Semester B.Tech. Degree Examination, June 2015
(2008 Scheme)
08.605 : ANTENNA AND WAVE PROPAGATION (T)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Differentiate between beamwidth and bandwidth of an antenna.
2. What is the physical significance of radiation resistance ?
3. What are the main applications of rhombic antenna ?
4. What is pattern multiplication ?
5. What are grating lobes ?
6. What are the advantages of Dolph Chebyshev method in designing arrays ?
7. What is duct propagation ?
8. Define the terms MUF and OMF.
9. What is virtual height and how it is measured ?
10. Derive the expression for critical frequency.



(10×4=40 Marks)

PART – B

Answer **any two** questions from **each** Module.

Module – I

11. a) A thin dipole antenna is $\lambda/15$ long. If its loss resistance is 1.5Ω , find its radiation resistance.
- b) Derive expression for the relation between directivity and effective area of an antenna.

P.T.O.



12. Derive expressions for directivity and radiation resistance of short dipole.
13. Explain on methods used for the measurement of directivity and impedance of an antenna.

Module – II

14. Explain the working of parabolic dish antenna. What is the significance of f/D ratio ?
15. Draw the diagrams and explain the working of helical antenna.
16. Find the resultant radiation pattern of uniform linear array with $n = 4$, $d = \lambda/4$ and $\alpha = \pi$.

Module – III

17. Derive the expression for effective earth's radius.
18. a) Explain the effects of earth's magnetic field.
b) A transmitter transmits signal with power $P = 40$ KWatts. The directive gain of the antenna is 1.74. Calculate the electric field intensity at a distance of 30 km from the transmitter.
19. Explain on :
 - I) VLF and ELF propagation in sea water.
 - II) VHF and UHF mobile radio propagation.

(6×10=60 Marks)