

T.E. / ET / Sem-IV / AWP / 25 / 11 / 2014

QP Code : 15074

(3 Hours)

[ Total Marks : 100

- N. B. :** (1) Question No. 1 is compulsory.  
(2) Answer any **four** questions from the remaining six questions.  
(3) Assume suitable data if required.

1. (a) Deduce the wave equations for a plane wave in free space with the help of Maxwell's equations. 5  
(b) Explain principle of pattern multiplication with a suitable example. 5  
(c) Explain Radiation resistance, antenna beam width, directive gain, effective area, antenna equivalent circuit. 5  
(d) Explain sky wave propagation. 5
2. (a) Derive the expression for radiation resistance of an infinitesimal dipole, explain its significance. 10  
(b) State and derive FRISS transmission formula. 10
3. (a) Explain and derive equations for total electric field, directivity, half power beamwidth in case of two isotropic point sources of same amplitude but opposite phase. 10  
(b) What is folded dipole antenna? Explain its operation, equation, properties and applications. 10
4. (a) Explain with suitable diagram the working of Log-periodic antenna. Write its practical applications. 10  
(b) Explain working of parabolic reflector antenna and its different feed mechanisms. 10
5. (a) Describe how the radiation pattern of a given antenna can be measured experimentally. 10  
(b) Describe space wave propagation and derive the relationship for minimum distance between transmitting and receiving antenna. Earth is assumed to be flat. 10
6. (a) Design a broadside Dolph-Tschebyscheff array of 6 elements with spacing 'd' between the elements and with a major to minor lobe ratio of 26 db. Find its excitation coefficients and array factor. 10  
(b) Explain the principle modes of operation of helical antenna and draw its radiation pattern. 10
7. Write short notes on (any four):- Three 20  
(a) Tropospheric scatter propagation. — 7  
(b) Retarded potential and its applications. — 7  
(c) Sleeve dipole. — 6

LM-Con.:7802-14.

Correction sheet  
Attached

Course : Prog. 583 to 597 T.E. All Branch (Sem VI) (Even)

Q.P Code : 15074

Correction :

---

Q7 Read as "Write short notes on"

(a) is of 7 Marks

(b) is of 7 Marks

(c) is of 6 Marks

---

Query Update time : 25/11/2014