Sixth Semester B.Sc. Electronics

RADIO & FIBRE OPTIC COMMUNICATION

MODEL QUESTION PAPER

(2013 Admission onwards)

Time: Three Hours **Maximum marks: 80**

Part A

Answer all the questions. Each question carries 1 mark.

1. Name the phenomenon by which microwaves follow the curvature of earth.
2. Give the relation connecting radio horizon and optical horizon
3. Name the modulation method used for typical microwave link.
4. What is the term used to define the range beyond which targets appear as second-time around echoes.
5. Mention the frequency range of 'C' band.
6. The device which protects the radar receiver from damages caused by high power of the transmitter
7. Radiation resistance of a half wave dipole
8. Give the term used to jointly refer azimuth angle and elevation angle
9. Acronym for MTI.
10. Give the formula for Numerical Aperture of a step index fiber.

(1 × 10 = 10)

Part B

Answer any eight questions. Each question carries 2 marks.

11. What is super-refraction?.
12. Explain Doppler effect.
13. Define virtual height.
14. What is meant by satellite 'foot print' ?
15. Define skip distance.
16. Differentiate geosynchronous and geostationary satellites.
17. What do you mean by 'Radar cross section of target' ?.
18. Calculate the first blind speed for an MTI radar working at 2 GHz and with a PRF of 1 KHz.
19. What are the drawbacks of LOS microwave systems ?.
20. Differentiate uplink and down link frequency.
21. What are the functions of a microwave repeater ?.
22. What is the principle of WDM ?.

(2 × 8 = 16)

Part C

Answer any six questions. Each question carries 4 marks.

23. Explain critical frequency and maximum usable frequency.
24. With a block diagram explain the working of FM-CW radar.
25. Explain the working of a transponder.
26. Define Doppler effect. Get an expression for the Doppler frequency shift.
27. Discuss the features of any two microwave antennas.
28. Starting from the basic principles, derive the height of geostationary orbit.

29. Briefly explain pulsed radar.
30. Discuss various means of beyond the horizon propagation.
31.Explain the effect of different ionosphere layers on signal propagation.

(4 × 6 = 24)

Part D

Answer any two questions. Each question carries 15 marks

32. Briefly explain the different modes of propagation.
33. With necessary diagrams discuss the SPADE DAMA satellite system.
34. Explain the working of MTI radar in detail.
35. Explain the different types of losses in optical fibers.

(2 × 15 = 30)