**2009 Anna University Chennai B.Tech Information Technology EC1391-TELECOMMUNICATION SYSTEMS Question paper**

QUESTION PAPER CODE : P1273

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fifth Semester

INFORMATION TECHNOLOGY

EC1391-TELECOMMUNICATION SYSTEMS

Regulation 2004

Time:Three hours Maximum: 100Marks

Answer ALL questions

PART A-(10x2=20 marks)

1. Why is ground wave propagation not suitable for signal frequencies above 3 MHz?

2. A CW radar operates at a frquency of 10 GHz. If a frequency shift of 1000Hz is produced between the transmitted and received signals, calculate the speed of the moving target.

3. Distinguish between posigrade and retrograde orbits.

4. Define station keeping.

5. Why is modal dispersion less in graded index fibres?

6. Compare the performance of silica and plastic fibres.

7. What do you mean by subscriber loop?

8. How is frequency reuse acvieved in cellular mobile radio systems?

9. What are the functions of MTSO iina cellular mobile environment?

10. Give the applacations of frequency hopping techniques in mobile radio systems.

PART B-(5x16=80 marks)

11. (a) (i) Draw and explain the principle and operation of TWT amplifiers. (8 marks)

(ii) Explain the characteristics and propagation of space waves. (8 marks)

OR

(b) (i) Discuss the principle of operation of Magnetron with a suitable diagram. (8 marks)

(ii) Explain the operation of pulsed radar with a neat diagram. (8 marks)

12. (a) (i) Draw and explain the different types of satellite transponders. (8 marks)

(ii) Discuss the attitude control of satellites. (8 marks)

OR

(b) Draw the genral block diagram of an earth station and briefly explain the different subsystems. (16 marks)

13. (a) (i) Discuss the principle of different sources and detectors used in optical communication systems. (6 marks)

(ii) Explain the operation of optical transmitters and receivers with neat circuit diagrams.

(10 marks)

OR

(b) (i) Write a brief note on fiber optic data communication systems. (8 marks

(ii) Discuss the different types of losses present in an optical fiber system. (4 marks)

(iii) Give a brief note on optical connectors. (4 marks)

14. (a) (i) Discuss the BORSCHT fuctions in telephony with a diagram. (8 marks)

(ii) Explain about the telephony hierarchy. (8 marks)

OR

(b) (i) Draw and explain the operation of a paging system. (8 marks)

(ii) Give a brief account of ISDN interfaces. (4 marks)

(iii) Briefly outline tha applications of data compression in facsimile. (4 marks)

15. (a) (i) Give a brief note on AMPS. (8 marks)

(ii) Why power contorl and security are regarded as major issues in mobile telepphony a nd disucss how they can be optimized? (8 marks)

OR

(b) (i) Enumerate the salient features of IS-95 system. (10 marks)

(ii) Give a brief note on RF channels, time slots and modulation techniques of GSM. (6 marks)