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Question Paper Code : 21369

B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Electronics and Instrumentation Engineering

EC 2315 / EI 55 / 10133 EE 501 – COMMUNICATION ENGINEERING

(Regulation 2008/2010)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is SWR?

2. Give the expression for free space path loss.

3. Write the characteristic features of spectrum of AM wave.

4. Define modulation index of FM.

5. Draw the block diagram of binary PSK transmitter.

6. Write the four possible values of the phase of the carrier in a QPSK wave.

7. What are modems?

8. List the advantages of ISDN.

9. Define the aspect ratio.

10. What are the three basic sections of a satellite system?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the various radio propagation mechanisms. (16)

Or

(b) (i) Explain the concept of formation of standing wave pattern. (6)

(ii) What do you understand by critical frequency and MUF? (5)

(iii) Briefly discuss about White Gaussian noise. (5)

12. (a) (i) Explain the block diagram of super heterodyne receiver. (12)

(ii) List the merits of having an RF amplifier in AM receivers. (4)

Or

(b) Explain briefly the basic methods of generating frequency-modulated waves. (16)

13. (a) (i) Determine the peak frequency deviation, minimum bandwidth and baud for a binary FSK signal with a mark frequency of 49kHz, a space frequency of 51 kHz and an input bit rate of 2 kbps. (6)

(ii) For a BPSK modulator with a carrier frequency of 70 MHz and an input bit rate of 10 Mbps. Find the maximum and minimum upper and lower side frequencies, the minimum Nyquist bandwidth and the baud. (6)

(iii) What are the spectral properties of binary PSK signals? (4)

Or

(b) Explain the following digital modulation systems.

(i) Binary FSK transmitter. (8)

(ii) Coherent binary FSK receiver. (8)

14. (a) Briefly discuss on the following

(i) Error control codes. (8)

(ii) Local Area Networks. (8)

Or

(b) Explain the seven layered architecture of OSI – ISO layers with their functions. (16)

15. (a)   What are the benefits of satellite communication systems? How is the location of a satellite tracked from the earth station? Write the satellite link equations.   (16)

Or

(b)   List the merits and demerits of optical communication systems. What are the essential components required for establishing an optical link. What are the various losses associated with it?   (16)

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