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Question Paper Code : 21758

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Third Semester

Information Technology

IT 2202/080250004/10144 IT 305/IT 36— PRINCIPLES OF COMMUNICATION

(Regulations 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for modulation?

2. What is modulation index?

3. What are the advantages of digital communication?

4. What is squaring loop?

5. Define companding.

6. What is the difference between delta modulation and adaptive delta modulation?

7. Define processing gain.

8. What are the different types of multiple access techniques?

9. What are LEO and GEO orbits?

10. What are the advantages of optical communication?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write short notes on

(1) AM voltage distribution. (4)

(2) AM power distribution. (4)

(ii) An audio frequency signal 10sin2p*500t is used to amplitude modulate a carrier of 50 sin2p* 10^5t. Calculate,

(1) Modulation index. (2)

(2) Side band frequencies. (2)

(3) BW required. (2)

(4) Total power delivered to the load of 600 Ω. (2)

Or

(b) (i) Compare FM and AM. (12)

(ii) The phase deviation constant in a phase modulation system is K= 0.01rad/v. Calculate the maximum phase deviation when the modulating signal of 10Vis applied. (4)

12. (a) (i) Derive Shannon limit for information capacity . (8)

(ii) Explain phase shift keying with neat diagram. (8)

Or

(b) (i) Compare ASK,FSK,PSK. (8)

(ii) Explain DPSK with neat diagram. (8)

13. (a) (i) Explain frequency shift keying principle and explain FSK transmitter with neat diagram. (10)

(ii) Write short notes on QAM. (6)

Or

(b) (i) Explain adaptive delta modulation with relevant diagram. (8)

(ii) Write short notes on ISI and eye patterns. (8)

14. (a) (i) Explain Frequency hop spread spectrum with diagram. (10)

(ii) Write short notes on pseudo noise sequence. (6)

Or

(b) (i) Explain DS spread spectrum with coherent binary PSK. (10)

(ii) Compare TDMA and CDMA. (6)

15. (a) (i) State the Kepler's three laws of planetary motion. (6)

(ii) Explain Satellite communication system with a neat block diagram. (10)

Or

(b) (i) Draw the block diagram of optical communication system and explain each block. (8)

(ii) Explain the different types of losses in Optical Fiber communication. (8)