Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 51215

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Fifth Semester

Electrical and Electronics Engineering

080280046 — COMMUNICATION ENGINEERING

(Common to 080280036 – Communication Engineering for B.E. (Part-Time) Fourth Semester, Electrical and Electronics Engineering)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. The carrier performs certain functions in radio communication. What are they?

2. When the modulation is 80%, an AM transmitter produces 20KW. How much of this is carrier power?

3. Define the term standing wave ratio as applied to a transmissionline.

4. What is meant by White Gaussian Noise? Why is it called so?

5. What is information rate?

6. Draw the NRZ and RZ waveform for the pulse stream 11101100.

7. State two functions of data link layer.

8. What is the role played by modems?

9. What is a geostationary orbit?

10. Name the three basic types of fiber-optic cable and state any two materials from which they are made.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the advantages of DSB modulation technique? Explain any one method of DSB generation. (8)

(ii) Explain the working of envelope detector. (8)

Or

(b) (i) Explain the Super heterodyne receiver. (8)

(ii) Explain the Armstrong method of FM generation. (8)

12. (a) (i) Explain the transmission line with its equivalent circuit. (10)

(ii) Write a note on Baluns. (6)

Or

(b) (i) Explain in detail about Ground wave and space wave propagation. (10)

(ii) Write a note on White Gaussian noise and its properties'. (6)

13. (a) What is the need for multiplexing? Explain Time division multiplexing with neat block diagram and mention its advantages, disadvantages and application.

Or

(b) What are the most predominant modulation schemes used in digital radio system? Explain phase shift keying, transmitter and receiver in detail and obtain its probability of Error expression.

14. (a) (i) Broadly comment on the access control methodologies of local area network. (8)

(ii) List and describe the HDLC operational modes. (8)

Or

(b) (i) How does BSC protocol achieve transparency? Explain. (6)

(ii) Determine the BCS for the following data and CRC generating polynomials.

$G(x) = x^7 + x^4 + x^2 + x^0 = 10010101$

$P(x) = x^5 + x^4 + x^1 + x^0 = 110011.$ (10)

15. (a) Give a detailed overview on :

(i) Satellite communication objectives, applications and challenges. (8)

(ii) Derive the uplink and downlink CNR equation for Satellite links. (8)

Or

(b) (i) State all the advantages of optical communication systems. (5)

(ii) Explain the total internal reflection principle of Optical fibers. (5)

(iii) Give a brief note on various optical sources and detectors with examples. (6)

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