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

Question Paper Code : 31366

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fifth Semester

Electrical and Electronics Engineering

EC 2311/EE 54/ 10144 EE 501 — COMMUNICATION ENGINEERING

(Regulation 2008/2010)

(Common to PTEC 2311 — Communication Engineering for B.E.(Part-Time) Fifth Semester — Electrical and Electronics Engineering — Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Find transmission power efficiency for a tone modulated signal when modulation index is 0.5.

2. Define the modulation index of FM.

3. State sampling theorem.

4. What is the principle of delta modulation?

5. What is BSC?

6. What is the rule for AMI code?

7. Define multiple access.

8. What is the principle of SDMA?

9. What is a satellite's footprint?

10. What is SCADA?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain a method of generating a single sideband signal using balance modulators. (8)

(ii) Discuss the principle of AM based radio frequency receiver with block diagram. (8)

Or

(b) (i) Draw and explain the block diagram of Armstrong system of generating FM signal. (8)

(ii) Derive the equation for the spectrum of FM signal (8)

12. (a) (i) Discuss the generation method of PWM. Explain how you will convert PWM to PPM with diagram. (6)

(ii) Explain a pulse code modulation system with its block diagram. (10)

Or

(b) (i) Explain frequency shift Keying method with equations. (8)

(ii) Discuss the method of modulation and demodulation in MSK with equations and block diagram. (8)

13. (a) (i) Given states $S=\{S_0,S_1,S_2,S_3,S_4\}$ and their probabilities $P=\{0.4,0.2,0.2,0.1,0.1\}$. Find coding efficiency and entropy for Huffman coding. (8)

(ii) Give the procedure for Shannon Fano coding and use the procedure to obtain the code for the source symbols S_0,S_1,S_2,S_3,S_4,S_5 with their respective probabilities 1/2, 1/3, 1/12, 1/15, 1/120, 1/120. (8)

Or

(b) Discuss the concept of coding and decoding methods of block codes with its mathematical frame work and diagram. (16)

14. (a) (i) Explain the principle of FDMA with diagram. (8)

(ii) Discuss TDMA technique in detail and compare it with FDMA. (8)

Or

(b) (i) Describe CDMA technique in detail. (8)

(ii) Explain the role of SDMA in wire and wireless communication. (8)

15. (a) (i) Draw and explain the block diagram of an earth station. (8)

(ii) Describe the aperture actuators used in satellites. (8)

Or

(b) (i) Discuss various types of fibers. (5)

(ii) Explain the following

(1) Laser diode

(2) Avalanche photodiode. (6+5)
