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Question Paper Code : 51457

B.E. /B. Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Fifth Semester

Electrical and Electronics Engineering

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

(Regulations 2008/2010)

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

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. State the need for modulation.
2. A carrier signal with power of 40 W is amplitude modulated by a sinusoidal signal. Compute the power of modulated signal if the modulation index is 0.7.
3. State Shannon's capacity limit.
4. List out few demerits of DPCM.
5. Calculate the amount of information if $p_k = \frac{1}{4}$.
6. What is entropy and give its mathematical equation.
7. State the principle of SDMA.
8. What are the different multiple access techniques ?
9. Compare LASER and LED sources.
10. Define critical angle in optical fiber.

PART – B (5 × 16 = 80 Marks)

11. (a) With a neat sketch explain the operation of single side band AM transmitter. (16)

OR

(b) Explain the FM generation using Armstrong method. (16)

12. (a) Discuss the various types of delta modulation schemes. (16)

OR

(b) (i) Compare PAM, PWM and PPM. (8)

(ii) Enumerate the generation of PWM wave with a neat sketch. (8)

13. (a) (i) Compare linear and convolution codes. (6)

(ii) State the conditions which hamming codes has to satisfy. (4)

(iii) Explain the following terms Code efficiency, Channel data rate and systematic codes. (6)

OR

(b) Enumerate Shannon's Fano algorithm and Huffman coding with a suitable example. (16)

14. (a) List out the various multiple access techniques and explain any two in detail. (16)

OR

(b) State the need for spread spectrum modulation and explain its operation with a neat block diagram. (16)

15. (a) Discuss the various light generating and detecting systems in a fiber optic communication. (16)

OR

(b) (i) Illustrate the operation of SCADA communication with a block diagram. (8)

(ii) Discuss the various losses in optic fibers. (8)