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

Question Paper Code : X 60454

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
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 – EEE – Regulations 2009)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. An AM transmitter is modulated by three sources of audio with m_1= 0.5, m_2 = 0.7, m_3 = 0.4. The Unmodulated carrier power is 50 kw. Calculate the modulated power output.

2. Compare NBFM and WBFM.

3. State sampling theorem.

4. What is the principle of delta modulation ?

5. Calculate the amount of information if p_k = ¼.

6. What is entropy and give its mathematical equation ?

7. What is FDMA ?

8. Mention the significance of CDMA techniques.

9. What are the primary advantages of optical fiber systems ?

10. Define angle of elevation.

PART – B **(5×16=80 Marks)**

11. a) Explain with a neat circuit, generation of AM wave. For an AM DSBFC modulator with carrier frequency f_c= 100 KHz and a maximum modulating signal f_m = 5 KHz, determine Bandwidth and sketch the output frequency spectrum.

(OR)

b) Draw the block for an Armstrong indirect FM generation and describe its operation. Compare FM and PM. **(10+6)**

12. a) What is meant by quantization ? Explain in detail DPCM communication system.

(OR)

b) Discuss the advantages of data communications and explain QPSK and QAM techniques with neat diagram.

13. a) A PCM system has the following parameters : a maximum analog input frequency of 4 KHz a maximum decoded voltage at the receiver of + 2.55V and a minimum dynamic range of 46 dB. Determine the following :

i) Minimum sample rate

ii) Minimum number of bits used in the PCM code

iii) Resolution

iv) Quantization error.

(OR)

b) What is BPSK ? With a neat block diagram, explain BPSK transmitter. Also analyze the Bandwidth considerations of BPSK.

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) 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)**.

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