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B. E. (Fifth Semester) Examination, April-May 2021

(New Scheme)

(IT Engg. Branch)

PRINCIPLES of COMMUNICATION SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) is compulsory. Attempt any* ***two*** *part from (b), (c) and (d). All questions carry equal marks.*

Unit-I

1. (a) What is the maximum average Power that can be transmitted in AM? 2

(b) Determine power content OF carrier and each of side bands for AM signal having % of modulation of 80% and total; power of 2500 W. Determine change in power in depth is lowered to 60%. 7

(c) What is the expression for modulation index for multitone signal? 7

(d) Explain with mathematical expression generation of SSB SC signal using phase shift method. 7

Unit-II

2. (a) On what factors bandwidth of frequency modulated signals is dependent. 2

(b) A carrier wave of frequency of 1GHz and amplitude 3 volts is frequency modulated by a sinusoidal modulating signal frequency of 500 Hz and of peak amplitude 1 volt. The frequency OF 500 Hz and of peak amplitude 1 volt. The frequency deviation is 1 kHz. The level of the modulating waveform is changed to 5 volt peak and the modulating frequency is changed to 2 kHz. Obtain expression for new modulated waveform. 7

(c) Explain Armstrong method of FM generation. 7

(d) Compare NBFM and WBFM. 7

Unit-III

3. (a) Differentiate TDM and FDM. 2

(b) State and prove sampling theorem in time and frequency. 7

(c) Explain communication system using PCM. Give an application. 7

(d) Explain delta modulation. Its limitations and how it can be overcome? 7

Unit-IV

4. (a) Discuss application areas digital modulation. 2

(b) Explain coherent BASK generation and detection with expression and block diagram. 7

(c) Draw block diagram of DPSK modulator and explain how synchronization problems is avioded for its detection. 7

(d) Compare binary ASK, BFSK and BPSK. 7

Unit-V

5. (a) The downlink frequency is lower than uplink frequency. State reason. 2

(b) Explain principle of light propogation through optical fibre. 7

(c) Discuss different losses in optical fibre. 7

(d) Draw schematic block diagram of satellite communication and also discuss role of transponders. 7