

Roll No.

Total No. of Pages : 02

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B.Tech. (Computer Science & Engg./Electrical Engg.) (Sem.-7)

ANALOG AND DIGITAL COMMUNICATION

Subject Code : BTEC-501-18

M.Code : 90690

Date of Examination : 17-01-23

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. SECTION-C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Write briefly :

- a) In a Amplitude modulation system, the carrier frequency is $F_c = 100$ KHz. The maximum frequency of the signal is 5 KHz. Determine the lower and upper side bands and the band width of AM signal.
- b) Define the term modulation index for AM and write its formula's in terms of V_{max} and V_{min} .
- c) How PM is generated from FM?
- d) What is function of sample and hold circuit in pulse modulation?
- e) How Adapative delta modulator recover the distortions of delta modulation?
- f) What is random Gaussian noise?
- g) What is Vestigial side band transmission?
- h) Define QAM and draw its constellation diagram. ?
- i) Give the difference between standard FSK and MSK.
- j) Sketch the digitally modulated waveforms for the binary data 110101 using ASK and FSK.

SECTION-B

2. Why there is need for modulation in communication systems? Explain how a SSB signal is generated using a filter method.
3. Why there is need of pre-emphasis and de-emphasis circuits in FM? Explain with the help of circuit diagram .
4. What problems does a Pulse amplitude modulation can solve?
5. With block diagram explain AM Transmitter.
6. Draw block diagram of FSK receiver and explain.

SECTION-C

7. With the help of diagram explain generation of QPSK and for the sequence 1101011010 Sketch the QPSK wave forms.
8. What is Intersymbol Interference? How Nyquist Criteria helps in reduction of ISI?
9. Give comparison of DPCM and DM with standard PCM. Why ADM is preferred instead of DM?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.