

## Scheme – E

## Specification Table

Course Name : Diploma in Information Technology and Medical Electronics

**Course Code : IF/MU**

## Semester : Fifth

12185

## **Subject Title : Communication Technique**

**Duration : 3 Hours**

**Marks : 100**

## Instructions:

1. All questions are compulsory.
  2. Illustrate your answers with neat sketches wherever necessary.
  3. Figures to the right indicate full marks.
  4. Assume suitable data if necessary.
  5. Preferably, write the answers in sequential order.

**Q.1 (a) Attempt any THREE of the following.**

12 Marks

- a) List the type of electronic communication and the basis of type of transmission media.  
List the advantage and disadvantage of analog communication.
  - b) Describe the concept of actual height and virtual height.
  - c) State and prove sampling theorem.
  - d) State the meaning of quantization and describe its importance.

**Q.1 (b) Attempt any ONE of the following.**

## **06 Marks**

- a) Draw and describe the block diagram Armstrong(indirect) FM transmitter.
  - b) Draw uplink model and downlink model of satellite communication system.

**O.2 Attempt any FOUR of the following.**

16 Marks

- a) Draw and describe the block diagram of ADM.
  - b) What is line coding give the classification of line coding.
  - c) Describe communication satellite with application.
  - d) List the various type of DSL. What is the significance of upstream and downstream stream in ADSL.
  - e) Compare TDMA with FDMA (Any 4 points)
  - f) Give one application for each of following bands used for communication satellites
    - (i) UHF band
    - (ii) S-band
    - (iii) C- band
    - (iv) X band

**Q.3 Attempt any FOUR of the following.**

16 Marks

- a) Describe the concept of frequency reuse scheme.
  - b) Convert the bit stream 1101 0100 into a)NRZ b)RZ c)MANCHESTAR formats

- c) Describe the advantages of pulse modulation over CW modulation
- d) Describe the working principle of parabolic dish and Horn feed antenna
- e) Describe principle of CDMA and discuss its advantages.(Any two point)

**Q.4 (a) Attempt any THREE of the following.** **12 Marks**

- a) Describe modulation index with waveform if the modulating voltage of 5volts is modulated with 7volts of carrier. Calculate percentage of modulation.
- b) Define the following terms
  - i) Elevation angle
  - ii) Azimuth angle
  - iii) MTSO
  - iv) Base station
- c) List the different types of distortions in Delta modulation .Show them with the help of graphical representation
- d) Describe space wave propagation with suitable diagram.

**Q.4 (b) Attempt any ONE of the following.** **06 Marks**

- a) Draw and describe working principe of QPSK.
- b) Give the application of satellite communication. (Any Four) .Give the frequency band used is satellite communication.

**Q.5 Attempt any FOUR of the following.** **16 Marks**

- a) Compare ASK and FSK.
- b) What is modulation, Give the classification of modulation. Explain the need of modulation.
- c) What do you mean by sampling. What are the different types. Describe any one.
- d) Draw the wave form for representation of AM and FM in frequency and time domain.
- e) Compare PCM with delta modulation (Four Point)
- f) Describe HDB3 and B8ZS with wave form.

**Q.6 Attempt any FOUR of the following.** **16 Marks**

- a) Describe the generation of DPSK with the help wave form.
- b) Draw the block diagram of cellular mobile phone and describe the function of each block.
- c) What is Manchester encoding and differential Manchester encoding. Draw wave form for 0101110
- d) Describe the various layers of ionosphere with neat sketch. Along with there application.
- e) Describe the analog hierarchy.