Sample Test Paper - I

Course Name: Diploma in Information Technology

Course Code : IF

Semester   : Fifth

Subject Title : Communication Technology

17519

Marks   : 25

Time: 1 hour

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

Q1. Attempt any THREE   09

    a) Define noise and state its effects.
    b) State the reasons for which pulse modulation is preferred over amplitude modulation.
    c) Draw the block diagram of superhetrodyne AM radio receiver.
    d) Compare natural and flat top sampling.(any three points)

Q2. Attempt any TWO   08

    a) Draw the block   diagram of FM transmitter .Describe the function of each block.
    b) Which errors can occur in delta modulation? Which circuit is used to overcome this? Draw the same.
    c) Compare PAM and PPM .(any four points)

Q3. Attempt any TWO   08

    a. Compare AM, FM with respect to
        1) Waveform
        2) Bandwidth
        3) Modulation index
        4) Noise immunity
    b. Define wave propagation .Describe   ground wave propagation with neat diagram.
    c. Draw the block diagram of PAM generation and describe its working.

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Q1. Attempt any THREE   **09 Marks**

a) Define ASK, FSK and PSK.
b) State any three frequency bands used for satellite communication system with frequency range.
c) State the working concept of CDMA. State any two advantages of it over TDMA and FDMA.
d) Define bit rate and baud rate. Give bit rate and baud rate for FSK and QPSK.

Q2. Attempt any TWO   **08 Marks**

a) Draw the block diagram for BPSK generation .State its working principle.
b) State the sequential steps for handset to handset call procedure in mobile communication.
c) Describe the concept of WDM in brief with the help of block diagram.

Q3. Attempt any TWO   **08 Marks**

a) Write the working principle of satellite communication with the help of basic block diagram.
b) Describe FDM with suitable block diagram.
c) Define the concept of 1) frequency reuse
                                        2) cell splitting used in mobile communication.

Sample Question Paper

Course Name: Diploma in Information Technology

Course Code : IF

Semester   : Fifth

17519

Subject Title : Communication Technology

Marks   : 100   **Time: 3 hours**

Instructions:

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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

Q1. A Attempt any THREE   **12 Marks**

a) Give the definition of AM and FM. Why FM reception is immune to Noise? Give reason.
b) Draw the waveforms for ASK. Give two advantages of ASK over FSK and PSK.
c) Draw the block diagram of TDMA. Describe its working.
d) Draw the labelled AM wave in time domain for
   i)   Modulation index=1
   ii) Modulation index<1

Q1. B Attempt any ONE   **06 Marks**

a) An AM transmitter produces 10 KW power with the modulation percentage of 75.Calculate the carrier power and power in side bands.
b) Draw the block diagram for QPSK generation. State the function of each block.

Q2. Attempt any FOUR   **16 Marks**

a) Draw the block diagram for delta modulation transmitter. Describe its operation.
b) Draw the block diagram of FM radio receiver. State the function of each block.
c) Draw the block diagram of digital modulation system. Describe the function of each block.
d) Encode the bit stream 11001010 using the following encoding techniques.
   i)   Unipolar NRZ.
   ii) AMI.
   iii) Manchester.
   iv) Bipolar RZ.
e) Draw the block diagram of standard telephone system. Describe its function.
f) Describe the applications of satellite communication in i)Surveillance ii)Navigation.

**Q3. Attempt any FOUR** 16 Marks

    a) Draw the block diagram for generation of PPM. Describe its operation.
    b) Define i)Sampling Theorem . ii) Nyquist Rate.
    c) Draw the output waveform for the following set up.
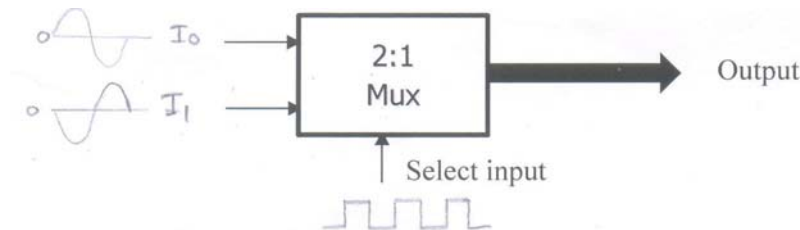
    d) Compare unipolar RZ and unipolar NRZ encoding methods.(any Four points)
    e) Compare TDM and WDM.(any Four points)

Q4.A) Attempt any THRE 12 Marks

    a)   Describe ionosphere wave propogation with the help of neat diagram.
    b)   Identify the encoding technique for the following waveform.
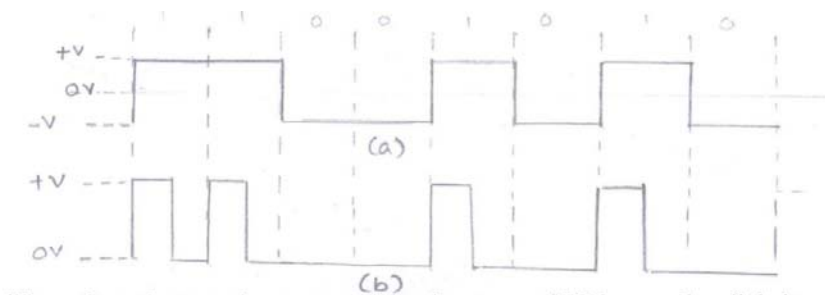
    c)   State the two advantages and disadvantages of FSK over other digital to analog
         modulation methods.
    d)   Describe the concept of hand off mechanism in mobile communication system. Draw
         the diagram.

Q4. B. Attempt any ONE 06 Marks

    a)   Draw the block diagram of PCM transmitter. State the function of each block. State two
         advantages of PCM.
    b)   Draw the diagram of mobile communication system.Describe its working.

Q5. Attempt any FOUR 16 Marks

    a) Draw the waveform for PAM, PWM and PPM with respect to carrier and information
       signal

b) Draw AM and FM signal in frequency domain. Give the bandwidth equation for both.
c) State the bandwidth required for FSK, BPSK,QPSK and DPSK.
d) Compare baseband and passband transmission (any 4 points).
e) State the necessity of encoding in digital transmission.
f) State the sequential steps for handset to landline call procedure (no diagram).

Q6.   Attempt any FOUR   16 Marks

a) Compare PAM and PWM on the basis of any four parameters.
b) Describe the operation of AM transmitter (High level modulation) with the help of block diagram.
c) What is Quantization? Describe it with the help of diagram.
d) Compare TDMA and FDMA on the following points.
    i)   Multiplexing Technique.
    ii)   Power efficiency
    iii)   Synchronization
    iv)   Guard band.
e) State any two applications of CDMA and FDMA.