Scheme G

Sample Test Paper-I

Course Name : Diploma in Industrial Electronics, Instrumentation, Instrumentation and Control

Course Code : IE/IS/IC/IU **17472**

Semester : Fourth

Subject Title : Principles of Communication System

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

Q.1 Attempt any THREE of the following **09 Marks**

a. Compare in between AM and FM on the basis of

i) Bandwidth

ii) Modulation index

iii) Waveform

b. Define noise figure, signal to noise ratio (SNR).

c. Draw diagram of delta modulation and explain the same.

d. Encode the binary data stream 1000010 into return to zero, non-return to zero (NRZ), polar NRZ, RZ, AMI and Manchester codes.

Q.2 Attempt any TWO of the following. **08 Marks**

a. Draw block diagram of generation of PAM and write it's working.

b. Draw block diagram of communication system and state function of each block.

c. Draw circuit diagram of FM modulation using varactor diode and describe its working.

Q.3 Attempt any TWO of the following. **08 Marks**

a. Explain footprint and station keeping related to satellite communication.

b. State advantage, disadvantage and applications of PCM.

c. Define ASK, FSK. Draw its waveforms.

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Sample Test Paper-II

Course Name : Diploma in Industrial Electronics, Instrumentation, Instrumentation and Control

Course Code : IE/IS/IC/IU **17472**

Semester : Fourth

Subject Title : Principles of Communication System

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

Q.1 Attempt any THREE of the following. **09 Marks**

a) State different frequency bands used in satellite communication.

b) What is hand off operation. List out various methods of handoff.

c) Distinguish between LED and LASER.

d) Explain serial data transmission mode in detail.

Q.2 Attempt any TWO of the following. **08 Marks**

a) State electrical characteristics of RS-232 standard.

b) Draw construction diagram of

i) Single mode step index fiber

ii) Multimode step index fiber

iii) Graded index multimode

c) Which error is occurred in delta modulation? Which circuit is used to overcome this error? Draw and explain the same.

Q.3 Attempt any TWO of the following. **08 Marks**

a) Define the following for optic fiber

i)Acceptance angle

ii)Critical angle.

b) State the function of hubs, repeaters bridges and routers.

c) Draw diagram of mesh, star, bus, ring topology

Scheme G

Sample Question Paper

Course Name : Diploma in Industrial Electronics, Instrumentation, Instrumentation and Control

Course Code : IE/IS/IC/IU **17472**

Semester : Fourth

Subject Title : Principles of Communication System

Marks : 100 **Time: 3 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

Q-1 A)Attempt any SIX **(12 Marks)**

a. State two advantages and two disadvantages of PAM.
b. Define elevation angle, azimuth angle.
c. Calculate modulation index for frequency modulation if the maximum frequency deviation of the carrier is ± 2.5 kHz and maximum modulation frequency is 10 KHz
d. State two advantages and two disadvantage of TDM.
e. Draw sketches of star and bus network topology.
f. Draw cross sectional diagram of step index optical fiber and label it properly.
g. What is Multiplexing? State its types.
h. Define frequency modulation and frequency deviation.

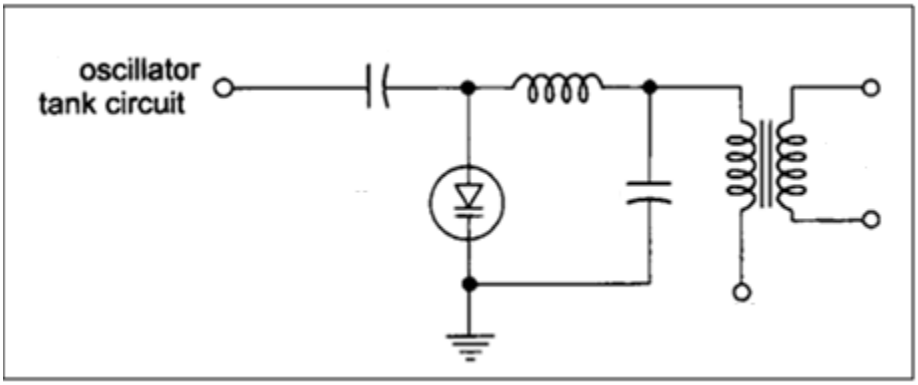
Q.1 B Attempt any TWO **(08Marks)**

a. Define the ASK and FSK with waveforms.
b. Describe FDM with suitable block diagram.
c. Draw well labeled waveforms of the following signal (a) Modulating Signal (b) Un-Modulated Carrier Signal (c) 50% modulated AM wave (d) 100% modulated AM wave

Q.2 Attempt any FOUR **(16Marks)**

a) Draw the diagram of generation of PWM and write its working principle.

b) Identify the given circuit and redraw it with the properly labeled components and explain its working.



c) Encode the binary data stream 1000010 into Return to zero, Non-return to zero (NRZ), NRZ, RZ, AMI and Manchester code.

d) Write working principle of uplink model of satellite communication with block diagram.

e) What is frequency reuse? Give its two advantages.

f) Compare AM and FM on the basis of following parameters

i) Bandwidth

ii) Modulation index

iii) Waveform

iv)Noise immunity

Q.3 Attempt any FOUR **(16 Marks)**

a What are the advantages of Pulse Modulation over AM ?

b Draw the block diagram of delta modulation. Write its working principle

c State four specification of LASER and LED each

d Write the working principle of transponder with the help of block diagram

e Describe the working of mobile communication with the help of block diagram.

f Define the term hand off , give steps involved in handoff process and state it's types.

Q.4 Attempt any FOUR **16Marks)**

a Define modulation index of AM. Calculate modulation index of AM signal with Emax=20mv and Emin=10mv

b Draw block diagram of PCM and state function of each block.

c State different frequency bands used in satellite communication.

d State advantages and disadvantages of Optical fibre cable.

e Write electrical characteristics of RS-232 standard.

f State the sequential steps for Mobile (cellular) to wire line (PSTN) Call procedure.

Q.5 Attempt any FOUR **(16Marks)**

a Draw block diagram of QPSK generation. State functions of each block.

b Compare ASK,FSK,PSK on the basis of

i) Waveform

ii) Variable parameters

iii) Noise immunity

iv) Bandwidth required.

c Write working principle of uplink model of satellite communication and draw its block diagram.

d State function of hubs, repeaters, bridges, routers.

e Draw block diagram of modem and write the function of each block.

f Describe serial data transmission mode

Q.6 Attempt any FOUR **(16Marks)**

a Which error is occurred in delta modulation. ? Which circuit is used to overcome this? Draw and explain the same.

b Draw the diagram of PIN diode, write its working principle.

c In which type of optical fiber dispersion loss is less ?. Draw the diagram of this fiber and state its any two performance characteristics.

d List the layers of OSI model and State function of any three layer .

e Draw and describe Star LAN configuration

f Differentiate between FDMA, TDMA, CDMA on basis of following parameters

i)Multiplexing technique

ii)Power efficiency

iii)Synchronization

iv) Guard band