Scheme – I

Sample Question Paper

Program Name : **Diploma in Medical Electronics**
Program Code : **MU**
Semester : **Fourth**
Course Title : **Electronic Communication Techniques**
Marks : **70** **Time: 3 Hrs.**

22437

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 FIVE of the following. **10 Marks**

a) State the need of modulation.
b) State the advantages of PCM technique.
c) List advantages and disadvantages of FDM.
d) Draw a block diagram of data communication circuit.
e) Write the advantages of Biotelemetry.
f) State the bandwidth requirements for FSK and BPSK.
g) State the necessity of sports physiology studies through telemetry.

Q.2) Attempt any THREE of the following. **12 Marks**

a) Describe FM demodulation circuit using single balance slope detector with neat sketch.
b) Explain sampling theorem.
c) Draw ASK signal and FSK signal for 10101000.
d) Describe parallel data transmission with neat diagram.

Q.3) Attempt any THREE of the following. **12 Marks**

a) State advantages and disadvantages of telemedicine.
b) Compare AM and FM on the basis of sidebands, BW, noise immunity and transmission frequencies used.

c) Describe the working of AM detector with neat sketch.

d) State electrical characteristics of RS232 standard..

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

a) Explain the operation of super heterodyne receiver with neat block diagram.

b) Explain the types of transmission modes used in data communication with neat sketch.

c) State the function of TCP/IP model with neat sketch.

d) Explain the operation of single channel biotelemetry system for ECG with neat block diagram.

e) State the concept of tele psychiatry and tele dermatology.

Q.5) Attempt any TWO of the following. 12 Marks

a) Draw amplitude modulated waveform for the condition

(i)m=0% (ii)m=100% (iii)m<100% (iv)m>100%

b) Explain with sketch the operation of QPSK.

c) Identify the limitation of TDM, FDM and WDM techniques.

Q.6) Attempt any TWO of the following. 12 Marks

a) Draw the following data formats for bit stream 1100101

(i) Polar RZ (ii) Manchester (iii)Differential Manchester.

b) Explain the working principle of PCM with neat block diagram.

c) Compare FDMA, TDMA, CDMA on basis of the following parameters.

(i)Multiplexing Techniques (ii)Power efficiency

(iii) Guard band (iv)Synchronization.

Scheme – I

Sample Test Paper - I

Program Name : **Diploma in Medical Electronics**
Program Code : **MU**
Semester : **Fourth**
Course Title : **Electronic Communication Techniques**
Marks : **20**

22437

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 FOUR. **08 Marks**

a) Define signal to noise ratio and noise factor.
b) Compare AM and FM on the basis of (i)waveform (ii)modulation index
c) Draw the block diagram of generation of PAM
d) State the applications of delta modulation
e) State the bandwidth requirements for PSK and QPSK.
f) State the principle of BPSK.

Q.2 Attempt any THREE. **12 Marks**

a) Illustrate how PPM is obtained from PWM.
b) Describe the working principle of DPSK with neat circuit diagram.
c) Draw the block diagram of digital communication system.
d) The amplitude of carrier wave varies between 5v and 1v. Calculate modulation index.
e) State the advantages of pulse modulation over amplitude modulation.
f) Explain the sketch the block diagram of generation of AM.

Scheme – I

Sample Test Paper - II

Program Name : **Diploma in Medical Electronics**
Program Code : **MU**
Semester : **Fourth**
Course Title : **Electronic Communication Techniques**
Marks : **20**

22437

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 FOUR. **08 Marks**

a) Draw the block diagram of FDM system.
b) Write the types of data transmission system.
c) Compare synchronous and asynchronous transmission.
d) Write serial interface standard
e) State the concept of telesurgery.
f) Define teleradiology.

Q.2 Attempt any THREE. **12 Marks**

a) Explain the operation of TDM transmitter with neat diagram.
b) Describe multiplexing technique with schematic diagram.
c) Draw the architecture of OSI model.
d) Describe data communication protocols.
e) Describe the operation of Multichannel biotelemetry with neat diagram..
f) Write the ethical and legal aspect of internet medical services.