17519

11819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Figures to the ***right*** *indicate* ***full*** *marks.*

Marks

1. A) Attempt **any three** of the following : **12**
i) Explain the necessity of modulation in Electronic Communication System. **4**
ii) Draw the block diagram for QPSK generation. State the function of each block. **4**
iii) Draw the block diagram of FDMA and describe its working. **4**
iv) Define modulation. Give its classification. **4**

B) Attempt **any one** of the following : **6**
i) Compare AM and FM on the basis of defination, waveform, noise, immunity, bandwidth, modulation index and frequency used for transmission. **6**
ii) Draw FSK waveform for a bit sequence 11101110. State its advantages and disadvantages (any two). **6**

2. Attempt **any** four : **16**
a) Draw the block diagram of Delta modulation transmitter. Describe its operation with waveform. **4**
b) Draw and explain the block diagram of communication system. **4**
c) Draw and explain block diagram of DPSK. Also give its advantages (any 2). **4**
d) Give the classification of encoding techniques. Give its advantages (any 2). **4**
e) Explain concept of frequency reuse and cell splitting in mobile communication with neat diagram. **4**
f) Draw the block diagram of telephone system. State function of each block. **4**

3. Attempt **any four** of the following : **16**
a) Draw the block diagram for generation of PPM. Describe its operation. **4**
b) Define PAM and describe the generation process of PAM with waveform. **4**
c) Define channel capacity and describe its significance. **4**
d) Draw the following data formats for bit stream 10110100. **4**
a) Unipolar RZ b) Bipolar NRZ
c) AMI d) Manchester
e) Describe the application of satellite communication : **4**
a) Surveillance
b) Navigation.

P.T.O.

Marks

4. A) Attempt **any three** of the following : **12**

i) Draw the block diagram of super heterodyne AM Radio Receiver. State the function of each block. **4**

ii) Define bit rate. In digital to analog modulation system signal carries 4 bits per signal element. If number of signal elements per second are 1000, calculate bit rate. **4**

iii) State the bandwidth requirement of :

a) ASK b) FSK

c) DPSK d) QPSK **4**

iv) State the sequential steps for handset to landline call procedure. **4**

B) Attempt **any one** of the following : **6**

i) Define :

a) Sampling theorem

b) Nyquist rate. **6**

ii) State applications of satellite communication system. (any four) **6**

5. Attempt **any four** of the following : **16**

a) Compare PAM and PWM on the basis of any four parameters. **4**

b) Draw AM and FM signal in frequency domain. Give the bandwidth equation for both. **4**

c) Explain working principle of Amplitude Shift Keying (ASK) with waveform. **4**

d) Draw and explain block diagram of Phase Shift Keying (PSK). **4**

e) Compare unipolar RZ and unipolar NRZ encoding methods (any four points). **4**

f) Explain forward and reverse cell processing with neat diagram. **4**

6. Attempt **any four** : **16**

a) Define PWM. List its advantages and disadvantages (any two). **4**

b) With neat sketch and explain ionospheric propagation. **4**

c) Compare pulse modulation with continuous wave modulation for four points. **4**

d) Explain the hand-off procedure and state hands-offs are needed. **4**

e) Draw the block diagram of satellite communication system and explain how it works. **4**
