Total No. of Questions : 8]

SEAT No. :

P1782

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M.Sc. - II

ELECTRONIC SCIENCE

EL3UT09 : Communication Electronics

(2013 Pattern) (Semester-III) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer any five questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicates full marks.***

Q1) a) With the help of block diagram, explain the basic elements of communication system. **[4]**

b) With the help of diagram, explain the working principle of quadrature amplitude modulation in short. **[3]**

c) What is non-resonant antennas? Write the characteristics of it. **[3]**

Q2) a) With the help of neat diagram, describe integrated services digital networks (ISDN). **[4]**

b) When the carrier and one of the side bands are suppressed in an Am wave to a depth of 50%. Calculate the percentage of power saving. **[3]**

c) Draw the block diagram of amplitude shift keying (ASK) and explain it in short. (Transmitter) **[3]**

Q3) a) Draw the diagram of parabolic reflector antenna and explain it in short. Write the features of it. **[4]**

b) Draw the block diagram of digital exchange and explain its operation in short. **[3]**

c) With the help of circuit diagram, explain the working of balanced modulator using diodes for SSB generation. **[3]**

P.T.O.

Q4) a) List the types of codes used for data transmission. Describe any two of them in short. Write their strengths and weaknesses. **[4]**

b) Draw the diagram of broadside array antenna. Explain its working in short and draw its radiation pattern **[3]**

c) Draw the block diagram of basic very small aperature terminal (VSAT) satellite communication system and explain each block in short. **[3]**

Q5) a) Draw the circuit diagram of balanced ratio detector and explain its working in short. **[4]**

b) Draw the block diagram of frequency division multiplexing. Write the working of it in short. **[3]**

c) With the help of neat diagram, explain the working of switch beam smart antenna in short. **[3]**

Q6) a) What is 3G? Write the characteristics of it. Write the advantages and disadvantages of 3G. **[4]**

b) With the help of block diagram, explain the working of single sideband generation (SSB) using phase shift method. **[3]**

c) Draw the SDLC frame format and explain the function of each field in short. **[3]**

Q7) a) Draw the diagram of antenna π coupler and explain it in short. **[4]**

b) With the help of neat diagram, explain any two types of couplers used in optical fiber communication system. **[3]**

c) Draw the block diagram of FM receiver and explain the function of each block in short. **[3]**

Q8) a) Draw the block diagram of adaptive delta modulation. Explain its working in short. Write the advantages of it over delta modulation. **[4]**

b) Describe the ground wave propagation of electromagnetic waves. **[3]**

c) Write the characteristics of code division multiple access (CDMA) and write the advantages of it. **[3]**