22322

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3 Hours / 70 Marks Seat No. | | | | | | | | |

15 minutes extra for each hour

Instructions : (1) All Questions are compulsory.

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

(a) Enlist components of data communication system.

(b) State advantages of fiber optic cable (any four).

(c) Enlist applications of satellite communication (any two).

(d) Name the types of multiplexing.

(e) Give classification of switching network.

(f) Name the different flow and error control techniques.

(g) Enlist features of 4G mobile telephone system (any two).

2. Attempt any THREE of the following : **12**

(a) Explain the process of amplitude shift keying modulation with suitable block diagram and waveforms.

(b) Define the terms amplitude, time period, frequency & phase with reference to sinusoidal wave.

(c) Draw the construction of twisted pair cable and label it. Explain why the cable is twisted.

(d) Explain the working of frequency division multiplexing with suitable block diagram.

3. Attempt any THREE of the following : **12**

(a) Compare AM & FM on the basis of following parameters :

(i) Definition (ii) Modulation index

(iii) Noise immunity (iv) Bandwidth

(b) Draw & explain construction of co-axial cable. Write the name of connector used for it.

(c) Compare FHSS and DSSS on the following parameters :

(i) Definition (ii) Acquisition time

(iii) Chip rate (iv) Modulation technique

(d) Explain working of CRC with following example. If G(x) = 110010 and M(x) = 101. Then calculate CRC. [G(x) – data to be transmitted, M(x) - Divisor]

4. Attempt any THREE of the following : **12**

(a) Explain how two computers communicated over analog telephone communication network with diagram.

(b) Explain with suitable diagram, the propagation of radio waves.

(c) Assuming odd parity bit, find the parity bit for each of the following data frames :

(i) 11011101 (ii) 00111001

(iii) 00101001 (iv) 11100100

(d) Draw the architecture of wireless LAN and explain.

(e) Explain datagram approach of packet switching network with suitable diagram.

5. Attempt any TWO of the following : **12**

(a) Explain with diagram all propagation modes of fiber optic cable.

(b) Explain ISO-OSI model with functions of each layers.

(c) Explain MAC layer for wireless LAN.

6. Attempt any TWO of the following : **12**

(a) Differentiate between circuit switching, Datagram packet switching and virtual circuit packet switching.

(b) Explain the following error recovery techniques with example :

(i) stop and wait

(ii) Go-back-n

(c) The following bit stream is encoded using VRC and LRC with odd parity. Locate and correct the error if it is present. Bit streams-are :

(i) 10110010 (ii) 00101011 (iii) 00101010

(iv) 11110011 (v) 10100011 (vi) 00101011

(vii) 00001010 (viii) 01001011

LRC : 01010100
