

314318

25226

3 Hours / 70 Marks

Seat No.

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- 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) 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) List different characteristics of data communication system.
(Any two)
 - b) Define following terms :
 - i) Protocol
 - ii) Bandwidth
 - c) List any four unguided transmission media.
 - d) Draw a neat labelled diagram of co-axial cable.
 - e) List any four application layer protocol.
 - f) Name the layer which is associated with transmission media.
 - g) List different types of network connecting devices.

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- 2. Attempt any THREE of the following : 12**
- a) Classify the network based on geographical area and transmission technology.
 - b) Explain circuit switching network with neat sketch.
 - c) Explain LRC with example.
 - d) Draw and explain layered architecture of OSI model.
- 3. Attempt any THREE of the following : 12**
- a) Compare Analog and Digital signals.
 - b) Describe the components of data communication with neat diagram.
 - c) Explain Bluetooth Architecture.
 - d) Describe types of IP address classes.
- 4. Attempt any THREE of the following : 12**
- a) Explain following modes of data communication :
 - i) Simplex
 - ii) Full-Duplex
 - b) Differentiate between LAN and WAN with respect to following parameters :
 - i) Geographical scope
 - ii) Speed
 - iii) Example
 - iv) Cost
 - c) Compare 3G and 4G mobile generations on the basis of data speed, technology, standard and services.

- d) Name the protocols used in :
 - i) Data Link Layer
 - ii) Network Layer
 - iii) Transport Layer
 - iv) Presentation Layer
- e) Draw suitable network layout with star topology for a computer lab with 10 hosts and a wireless printer. List all components in the layout.

5. Attempt any TWO of the following : 12

- a) Explain multiplexing techniques.
- b) Calculate CRC for the frame 11000 and generator polynomial $X^3 + X + 1$ and write the transmitted frame.
- c) Explain ARP, subnetting and supernetting with example.

6. Attempt any TWO of the following : 12

- a) Write the steps to prepare crossover and straight cable using twisted pair cable.
 - b) For the classless address 167.55.21.11/24. Find following :
 - i) Number of address in the block (N)
 - ii) The first address
 - iii) The last address
 - c) With suitable diagram explain :
 - i) Star topology
 - ii) Mesh topology
 - iii) Tree topology
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