

# 22634

**12526**

**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 answer 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) Define the terms :–
- i) Computer network
- ii) Protocol.
- b) State the protocols of network layer and transport layer.
- c) Enlist types of communication media.
- d) State advantages of co-axial cable.
- e) A receiver receives the bit pattern 01101011. If the system is using even parity, state whether the received message has an error?

P.T.O.

f) Find the checksum for the datawords :-

A → 10110011

B → 01100101

C → 00011001

g) Compare Hub and switch.

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

- a) Describe serial transmission with suitable diagram. State its any two advantages.
- b) Explain functions of data link layer of TCP/IP reference model.
- c) Explain datagram packet switching with neat diagram.
- d) Describe RTP and SCTP.

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

- a) Describe point-to-point network with neat diagram.
- b) Compare circuit switching and message switching.
- c) Construct the hamming code for data 1101 using odd parity.
- d) Explain IPV4 addressing with its any two advantages.

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

- a) Explain addressing modes in TCP/IP reference model.
- b) State principle of TDM. Explain synchronous TDM with diagram.
- c) Explain transition phases of PPP with suitable diagram.
- d) Explain symmetric cryptography using proper block diagram.
- e) On which layer the following devices work –
  - i) Bridge
  - ii) Hub
  - iii) Switch
  - iv) Router.

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

- a) Explain the following topologies –
  - i) Star Topology
  - ii) Ring Topology.
- b) Draw OSI reference model. Explain functioning of following layers –
  - i) Physical layer
  - ii) Data link layer
  - iii) Network layer
  - iv) Transport layer
  - v) Session layer
  - vi) Presentation layer
  - vii) Application layer.
- c) Explain selective repeat ARQ using suitable diagram.

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

- a) Draw and explain block diagram of data communication system and write down it's characteristics.
  - b) Explain the following terms with suitable diagram :-
    - i) ADSL
    - ii) FDM.
  - c) Differentiate between IPV<sub>6</sub> and IPV<sub>4</sub>.
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