2010

Time: 3 hours

Full Marks: 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective Type Questions)

1. Choose the correct answer of the following:
   \[2 \times 10 = 20\]

   (a) ARP is used to find:

   (i) IP Address

   (ii) MAC Address

   (iii) Subnet Address

   (iv) Host Address

SB – 26/3. (Turn over)
(b) Baud is:
   (i) Number of bits per second
   (ii) Number of signal changes per second
   (iii) Number of bytes per second
   (iv) Number of characters per second

(c) Router operates in:
   (i) Data Link Layer
   (ii) Network Layer
   (iii) Transport Layer
   (iv) All of the above

(d) Flow control in OSI model is done by:
   (i) Data link layer
   (ii) Network layer
   (iii) Transport layer
   (iv) Both data link and transport layer

(e) IP address in the B class is?
   (i) 125.123.123.2
(ii) 191.023.21.54
(iii) 192.128.32.56
(iv) 10.14.12.34

(f) Which of the following to keep track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet?

(i) Address Resolution Protocol (ARP)
(ii) Internet Protocol (IP)
(iii) Hyper Text Transfer Protocol (HTTP)
(iv) Transmission Control Protocol / Internet Protocol (TCP/IP)

(g) The device operating at Data Link Layer is:

(i) Bridge
(ii) Router
(iii) Repeater
(iv) None of the above

SB – 26/3 (3) (Turn over)
(h) Not a function of a Data Link Protocol:

(i) Media Access Control
(ii) Amplitude Shift Keying
(iii) Message Delineation
(iv) Error Control

(i) TELNET, FTP, SMTP. Protocols fall in the following layer of OSI reference model:

(i) Transport Layer
(ii) Internet Layer
(iii) Network Layer
(iv) Application layer

(j) Which of the following technology is based on virtual circuits?

(i) Frame relay
(ii) Token bus
(iii) Token ring
(iv) Ethernet

SB – 26/3 (4) Contd.
Group – B

(Long-answer Type Questions)

Answer any four questions:

2. (a) Explain with the help of a neat labelled diagram the ISO-OSI Model and the function of its various layers. 8

(b) What are the different classes of addresses used in IPv4? List their ranges in dotted decimal notation. 7

3. (a) Compare the IEEE standards 802.2, 802.3, 802.4, 802.5, and 802.6 briefly. 8

(b) Briefly explain the High-Level Data Link Control (HDLC) protocols with neat labelled diagrams. 7

4. (a) With respect to transmission media, compare Fiber Optics and Copper Wire. 8

(b) Explain the concept of framing with respect to Data Link Layer. 7

5. (a) Explain the concept of IP protocols and addresses, subnets and Internet Control Protocols for the network layer in the Internet. 8

SB – 26/3 (5) (Turn over)
(b) What are Routing Algorithms? Explain flooding, the optimality principle and shortest path routing.

6. (a) What is meant by simplex, half duplex and full duplex communication system? Give representative examples of each.

(b) What is circuit switching? Discuss how packet switching is better than circuit switching for computer to computer communication.

7. (a) Describe the advantages of a small cell size in ATM.

(b) What is distributed routing? Compare it with hierarchical routing.

8. (a) What are the reasons for congestion in a network? Describe any one method for congestion control.

(b) Compare and contrast between OSI model and TCP/IP model.

SB – 26/3 (6) Contd.
9. (a) What is Sliding Window Protocol? Explain with well labelled diagram.  
(b) What is the difference between Hub and Switch?  

10. (a) What is the use of VPN?  
(b) Compare static and dynamic routing. What are the various dynamic routing protocols?