

(4)

6. (a) Give a comparison between TCP and UDP. Both UDP and TCP use port numbers to identify the destination entity when delivering a message. Give two reasons for why these protocols invented a new abstract ID (port numbers), instead of using process IDs, which already existed when these protocols were designed. 6
- (b) Datagram fragmentation and reassembly are handled by IP and are invisible to TCP. Does this mean that TCP does not have to worry about data arriving in the wrong order ? Explain. 4
7. (a) What are the differences between IPv4 and IPv6 ? Explain. 5
- (b) How Domain Name System Works ? Suppose a person in India is connecting a website with .au TLD, then explain the process. Explain with diagram. 5

(5)

8. Write short notes on any two : 5 × 2

- (i) World Wide Web
- (ii) SMTP
- (iii) Time Division Multiplexing
- (iv) Line Coding.

Full Marks : 70

Time : 3 hours

Answer **Q. No. 1** which is compulsory and
any **five** questions from the rest

The figures in the right-hand margin indicate marks

1. Answer *all* questions : 2 × 10

(a) Give two reasons for using layered protocols.

(b) What is the main difference between guided media and unguided media ?

(c) Which of the OSI layers handles each of the following ?

(i) Dividing the transmitted bit stream into frames.

(ii) Determining which route through the subnet to use.

(Turn Over)

(2)

- (d) What is the main difference between TCP and UDP ?
- (e) Consider the delay of pure ALOHA versus slotted ALOHA at low load. Which one is less ?
- (f) What is FTP ?
- (g) A bit string, 011110111110111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing ?
- (h) Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation.
- (i) Write principles of circuit switching.
- (j) Using the RSA public key cryptosystem, with $a = 1$, $b = 2$, etc., using $p = 5$, $q = 11$ and $d = 27$, find e and encrypt "abcdefghij".

(3)

2. (a) Discuss the CSMA protocols for Local Area Network. 5
- (b) Discuss the PPP access and protocols. 5
3. (a) Explain various types of data link protocols in brief. Describe HDLC ? 5
- (b) Describe the various modulation techniques used in data communication system. 5
4. (a) Describe the various error correction protocols. 5
- (b) Discuss the reason of congestion and the control mechanism. 5
5. (a) Explain the basics of Wireless LANs. 5
- (b) Give an account of various Ethernet connections. 5