

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

03705

June, 2018

**BCS-052 : NETWORK PROGRAMMING AND
ADMINISTRATION**

Time : 3 hours

Maximum Marks : 100

Note : *Question number 1 is compulsory. Answer any three questions from the rest.*

1. (a) Explain the significance of "Type of Service" field in the header of IP datagram. 5
- (b) What is meant by flow control ? Explain any two methods used by TCP to manage flow control. 7
- (c) Why is "getservbyname()" system call used in TCP/IP programming ? Write its syntax and different parameters taken by it. 5
- (d) Explain any five disk management functions used by the network administrator. 10

- (e) Assume the following hexadecimal number as a TCP header sequence : 9

05320017 00000001 00000000
500207FF 00000000

- (i) What is the source port number ?
 - (ii) What is the sequence number ?
 - (iii) What is the acknowledgement number ?
 - (iv) What is the length of the header ?
 - (v) What is the type of the segment ?
 - (vi) What is the window size ?
- (f) Explain any four methods used by HTTP for data transfer. 4

2. (a) Explain TCP connection-establishment and connection-termination using 3-way handshaking, along with different segments used in the processes. Make a suitable diagram for each connection-establishment and connection-termination. 10

- (b) What is subnetting and supernetting ? Explain each with the help of an example. Also write the advantages of supernetting and subnetting. 10

3. Write an algorithm each for TCP client and for TCP server to perform the following tasks : 20
- TCP client establishes the connection with server.
 - TCP client sends any three numbers to the server.
 - TCP server responds back to the client by sending the smallest number.
 - TCP server cannot handle more than four clients at a time.

Note : Make suitable assumptions, if any.

4. (a) Write the syntax of the following system calls along with the meaning of parameters used by them : 10
- (i) bind()
 - (ii) htons()
 - (iii) connect()
 - (iv) listen()
 - (v) sendto()
- (b) What is Virtual Private Network (VPN) ? Write its advantages and disadvantages. Also compare VPN with Free NX. 10

5. Write short notes on the following : 20
- (a) Link State Routing
 - (b) FAT16 and FAT32
 - (c) SNMP
 - (d) Cloud Computing