BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)

07475   **Term-End Examination**
December, 2016

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) Write the limitations of classful addressing in IPv4. Also explain how these are improved by classless addressing.   *5*

    (b) What are ICMP messages ? Give the significance of ICMP messages.   *5*

    (c) What is the purpose of sequence number in a TCP segment ? Why is padding required for a TCP segment ?   *5*

    (d) Explain the structure of UDP datagram using a suitable diagram.   *5*

    (e) What is Virtual Private Network ? Compare VPN and FreeNX.   *5*

    (f) Compare and contrast between POP and IMAP.   *5*

(g) How do the layers of TCP/IP model correlate with the layers of OSI model ? Also explain the functions of OSI model which are not mapped in TCP/IP model. *10*

2. (a) Explain DNS in terms of namespace, resource record and name server. Also discuss its message format. *10*

(b) Explain the various UDP server side system calls and getsocket, setsocket functions. Also write their parameters. *10*

3. Write an algorithm each for TCP client and TCP server according to the following specifications : *20*

- TCP server can handle maximum 3 clients concurrently.

- TCP client will send a list of numbers to the server, after establishment of connection.

- TCP server will accept the list and return back to the client.

- After receiving the reverse list the client will send "Thanks" message to the server.

4. (a) Explain the methods of TCP used for avoiding network congestion. *6*

(b) Explain the working of DHCP with the activities performed between DHCP server and DHCP client. *8*

(c) Discuss the working of RARP. Also compare it with the working of ARP. *6*

5. Write short notes on the following :   *4×5=20*

   (a)   SNMP

   (b)   Raw Sockets

   (c)   Virtual Circuit

   (d)   Gateways

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