06442

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

June, 2011

BCS-061 : TCP / IP PROGRAMMING

Time : 2 hours   *Maximum Marks : 60*

Note :   *Question no. 1 is compulsory. Answer **any three** from the rest.*

1. (a) Given the network address 15.0.0.0, find the   **2**
         class and the range of the addresses.

    (b) In a class B subnet, we know the IP address   **2**
         of one of the hosts and the mask as given
         below :

         IP address : 129.134.112.66

         Mask   : 255.255.224.0

         What is the subnet address ?

    (c) How many octets are there in IPV_4 address ?   **2**

    (d) Explain the process of TCP connection   **6**
         establishment through illustration.

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(e) Write a client and server program in C-language to establish a TCP connection between a client and a server. Once a connection is established, the client program will send a string, the server will count the length of a string and send the result back to the client as a reply. Also explain the logic of the program.   **8**

(f) What are the socket types available in Unix ?   **2**

(g) In cases where reliability is not of prime importance, UDP would make a good choice. Give two examples in support of it.   **4**

(h) Write the syntax and purpose of the following Unix commands.   **4**
- df   • ping
- who   • rcp

2. Differentiate between the followings :   **10**
   (a) Stateful and stateless programs
   (b) Stream socket and datagram socket
   (c) Connection oriented and connection-less services
   (d) Broadcast and multicast

3. (a) What is domain name resolution ? Illustrate through an example the complete procedure of mapping a domain name to IP address.   **6**

(b) Write the syntax and meaning of functions **4**
which convert data from the host format to
the network format.

4. Explain the purpose and importance of the **10**
following IP and TCP header fields
(a) Total length
(b) Type of service
(c) HLEN
(d) PSH and SYN Flags
(e) Acknowledgement Number

5. (a) Explain the following terms : **6**
(i) System call
(ii) Byte ordering
(iii) Socket descriptor

(b) Where are ICMP messages like *"Source* **4**
Quench message and Redirect Routes
used ?"