No. of Printed Pages : 3

BCS–061

05000

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

December, 2010

BCS–061 : TCP / IP PROGRAMMING

Time : 2 hours *Maximum Marks : 60*

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

1. (a) What is the purpose of "Type of service" field used in the header of IP datagram? Also, explain the maximum number of hops that a datagram can remain in, in the network before it is discarded. 5

   (b) Explain why does lost acknowledgement not necessarily force the re-transmission of TCP data segment ? 5

   (c) List and explain the various services offered by TCP to a running process on application layer. 5

   (d) How many networks are possible in each IP address class A, B and C ? Also, calculate the number of hosts per network in each given address class. 3

(e) Explain the differences and similarities between OSI and TCP/IP model. 5

(f) Identify the TCP/IP layer at which ICMP operates. Also, give any four functions performed by ICMP at that layer. 5

(g) What are the disadvantages of classful addresses ? 2

2. (a) Draw and explain the three way handshake mechanism used by TCP for connection establishment. 5

(b) An IP datagram has arrived with the following information in the header (in HEX) : 5

23 00 34 32 36 2B 00 32 E0 64 32 F5 3C 45 54 32 17 23 0F 02 20 bytes

Answer the following :

(i) Are there any options?

(ii) What is the size of the data?

(iii) Is the packet fragmented

(iv) What is the identification number of the packet?

(v) How many more routers can the packet travel to ?

3. (a) Explain the purpose following fields of the TCP header format: 6

(i) Urgent Pointer

(ii) Window Size

(iii) Sequence number

(b) Why FTP uses two connections ? Also, briefly explain its working. 4

4. Write an algorithm each for a TCP client and TQ Server with the following specification. 10

(i) TCP client will initiate the communication and send " Users name " to the server.

(ii) TCP server has a list of users. It accept the maximum fire clients at a time. TCP server accepts the user name from clients. As a reply it send the server system time to the respective client

Note: Make suitable assumptions, if any. 10

5. Write the syntax of the following system calls along with the meaning of parameters used by them:

(i) bind ( )

(ii) send to ( )

(iii) connect ( )

(iv) htons ( )

(v) get host by addr ( )