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BCS-061

07999

BACHELOR OF COMPUTER APPLICATIONS

Term-End Examination

December, 2012

BCS-061 : TCP / IP PROGRAMMING

Time : 2 hours *Maximum Marks : 60*

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

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1. (a) Assume an IP datagram has arrived with the following first 16 bits of information in its header (in binary) as given below : **6**

0110101101000110 X.X.X.X ....

←——First 16 bits——→

Answer the following using the above information :

(i) What is the size of header ?

(ii) Are there any option ?

(iii) What is the precedence of Datagram ?

(iv) What type of service, this datagram contains ?

(b) Explain the mechanisms used by TCP for congestion control and flow control. 6

(c) Explain the purpose of following IP addresses ? 4

(i) 255.255.255.255

(ii) 0.0.0.0

(d) What are the different query messages in ICMP for network monitoring and management ? 4

(e) Write an algorithm each for TCP client and server with the following specifications : 10

(i) Client program start the communication, after authentication from server it send a list of numbers (eg. 2, 8, 10, 3, 7) to the server.

(ii) TCP server can handle multiple clients (maximum 4), accept the list of numbers. As a reply it send the sum of numbers given by the client.

Note : Make assumptions, if necessary.

2. (a) Differentiate between POP and IMAP protocols. 5

(b) What is DNS server? Differentiate between primary and secondary DNS server. 5

3. (a) "TCP is a connection-oriented, reliable protocol". Justify the statement. 4

(b) Explain the role of following TCP flags used in TCP header. 6

(i) URG (ii) SYN (iii) PSH

4. (a) Draw the IP datagram header format. Also, justify why IP is an unreliable protocol, even it has Header "Checksum" field. 6

(b) What is meant by binding in network programming. Explain any two uses of bind ( ) system call. 4

5. Explain the syntax of the following system calls alongwith the meaning of parameters used by them. 10

(a) write ( )

(b) recv ( )

(c) accept ( )

(d) socket ( )

(e) set sockopt ( )