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BCS-052

BACHELOR OF COMPUTER APPLICATIONS (BCA) (Revised)

Term-End Examination

June, 2021

BCS-052 : NETWORK PROGRAMMING AND ADMINISTRATION

Time : 3 hours *Maximum Marks : 100*

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

1. (a) Do port addresses at transport layer need to be unique ? Why or why not ? Why are port addresses shorter than IP addresses ? *5*

(b) What is ARP ? How does it differ from RARP and BOOTP ? Explain. *5*

(c) Which field in IP header is used for specifying maximum number of hops that a datagram can remain on network ? Explain. *5*

(d) Draw the Block diagram of DNS. Explain the purpose of various fields used in DNS message format. *5*

(e) In electronic mail, what is MIME ? Explain its purpose and functionality. 5

(f) How is checksum in TCP header computed ? Give an example to explain it. 5

(g) Differentiate between FAT 16 and FAT 32. 5

(h) List the layers in TCP/IP model. Why is layering of the protocols done in TCP/IP stack ? 5

2. (a) What is meant by Socket ? Differentiate between active and passive sockets. 5

(b) What is the role of 'Out-of-Order' segment ? Explain how TCP handles Out-of-Order segments. 5

(c) What are the components of IP header ? What is the significance of fragment offset in IP header ? 5

(d) Write the syntax and uses of "useradd" command in Linux. 5

3. (a) How is flow control managed in TCP ? Explain the sliding window protocol using an example. 10

(b) Explain the various components of URL, using an example. 5

(c) How many hosts are possible per subnet and how many subnets are possible, if a subnet mask 255.255.0.0 is assigned to an address of class B ? 5

4. (a) Explain the following socket system-calls along with their purpose : $4 \times 2\frac{1}{2} = 10$

(i) Bind

(ii) Connect

(iii) Listen

(iv) Accept

(b) Write an algorithm for both, i.e. TCP client and TCP server, where the connection request from the client prompts the server to send the system date and time to the client, for which the client will send an acknowledgement. 10

5. Differentiate between the following : $4 \times 5 = 20$

(a) Gateway and Bridges

(b) TCP and UDP

(c) Authentication and Authorization

(d) SOCK_STREAM() and SOCK_DGRAM()