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3 (Sem-6/CBCS) CSC HE 1

2023

COMPUTER SCIENCE

(Honours Elective)

Paper : CSC-HE-6016

(Network Programming)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions as directed : 1×7=7

(a) SCTP is a connectionless protocol.
(State True or False)

(b) UDP doesn't offer an acknowledgment mechanism. (State True or False)

(c) The TCP/IP socket includes IP address and _____. (Fill in the blank)

Contd.

- (d) IO multiplexing is used
- (i) when server handles both TCP and UDP
 - (ii) when client handles multiple sockets at the same time
 - (iii) None of the above
 - (iv) All of the above (i) and (ii)
- (Choose the correct option)

(e) HTTP is an application protocol that runs on top of the TCP/IP suite.
(State True or False)

(f) Remote login is implemented using Telnet.
(State True or False)

(g) _____ is used for remote network administration.
(Fill in the blank)

2. Define the following terms : $2 \times 4 = 8$

- (a) UDP
- (b) Address lookup
- (c) Remote login
- (d) Network byte order

3. Answer the following questions : **(any three)**
 $5 \times 3 = 15$

(a) Differentiate between TCP and SCTP.

(b) Why UDP is considered to be unreliable?

(c) Write the use of the following commands :

(i) ifconfig

(ii) traceroute

(d) Explain getsockopt and setsockopt subroutines.

(e) Explain the remote login procedure with Telnet.

4. Answer **any three** of the following questions :
 $10 \times 3 = 30$

(a) What is TCP header? Explain the fields of TCP header format.

(b) Explain the three way handshake of TCP connection establishment with suitable diagrams.

(c) Write a TCP/IP client server program. Where client will send a string to the server and server send back reply to the client as "string is palindrome" or "string is not palindrome" ? Use loopback interface.

(d) Explain how I/O multiplexing is carried out using select and poll functions.

(e) Explain the functions of htons(), htonl(), ntohs() and ntohl().

(f) Write short notes on : **(any two)**

(i) HTTP

(ii) Network manager in Linux

(iii) Network debugging