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3 (Sem-6/CBCS) CSC HE 1

2024

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) UDP is an acronym for _____.
(Fill in the blank)

(b) UDP and TCP are both _____ layer protocols.
(Fill in the blank)

(c) Which of the following functions does UDP perform ?

(i) Process-to-process communication

(ii) Host-to-host communication

Contd.

(iii) End-to-end reliable data delivery

(iv) None of the above

(Choose the correct option)

(d) The header size of a UDP packet is

(i) 8 bytes

(ii) 8 bits

(iii) 16 bytes

(iv) 124 bytes

(e) Socket address is combination of IP address and port address.

(State true or false)

(f) A remote logging provider creates a secure, HTTPS-encryptedd POST end point as a string dump.

(State true or false)

(g) _____ command brings the network interface up. (Fill in the blank)

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

(a) SCTP

(b) HTTP

(c) Email

(d) Address Lookup

3. Answer **any three** of the following questions :

$5 \times 3 = 15$

(a) Differentiate between TCP and UDP.

(b) Explain the sequence of API calls using signals to alert the application when the socket is inactive.

(c) Write the use of the following commands :

(i) ethtool

(ii) netstat

(d) Explain the remote login procedure with Telnet.

(e) Explain **any two** techniques to debug network issues.

4. Answer **any three** of the following questions :

$10 \times 3 = 30$

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

(b) What is I/O multiplexing ? What are the scenarios in which I/O multiplexing is used ? What are the advantages and disadvantages of I/O multiplexing ?

(c) Explain **two** common protocols for email delivery.

(d) Write an overview of HTTP request methods.

(e) Write programs to implement TCP chat client and server.

(f) Write short notes on :

(i) Network management

(ii) TCP handshake