Course Code : CST 413–1 **KOLP/RW – 19 / 9156**

Seventh Semester B. E. (Computer Science and Engineering) Examination

Elective - I

WEB ARCHITECTURE AND TECHNOLOGIES

Time : 3 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) All questions carry equal marks. Figures to the right indicate marks.
(2) Carefully see the internal choices.
(3) Assume suitable data and illustrate your answers with the help of neat sketches wherever necessary.
(4) Due credit will be given to neatness.

1. (a) Highlight some of the milestones with respect to the years specified below in Evolution of internet.
1969, 1971, 1974, 1984. 3(CO1)

OR

(b) Brief about Count to infinity problem. Give the solutions. 3(CO1)

(c) A packet is decomposed into 4 fragments, each with a header IP length of 20 bytes. The length of last fragment is 2892 bytes and its FO is 1266.

(1) What is the network MTU ?

(2) What is the data payload of the last fragment ?

(3) What is the combined data payload of the fragments excluding last fragment ?

(4) What are the FO's of the fragments ?

(5) What is the length and data payload of the original packet?

(6) A second packet must be sent over a link with an MTU of 1,300 bytes. Apply fragmentation and show the contents of the all fragmentation related header fields in each fragment. Also calculate additional bytes that will be delivered at the destination. 7(CO1)

2. (a) Explain FTP Process Model with neat sketch. Describe Anonymous FTP and four different FTP commands with its use. 4(CO1)

OR

(b) Describe any one type of name resolution with neat sketch. Which command is used to invoke DNS name resolver ? Show the execution of that command. 4(CO1)

(c) A message of 8,500 bytes consists of 85 percent ASCII and 13 percent non–ASCII characters is encoded using base64 and quoted–printable. Answer the following :

- How many bytes are in the encoded message ?
- How many bytes are redundant ?
- Calculate efficiency. 6(CO1)

3. (a) Construct a Perl program for operation given below :

Take the input string as "name=niloy&rollno=7312&age=24". Convert to name value pair, store it and display it using hash. Display the stepwise output. 5(CO2)

(b) Create a web page using JavaScript to submit a student form with name and phone number. Validate the form input by accepting only alphabets in Name, and exactly 10 digits in Phone number (no alphabet or special character). Also prompt user in the end "Do you really want to submit?" 5(CO2)

4. (a) Elaborate the central idea behind Diffie–Hellman key exchange algorithm.

In this protocol, g=7, p=43, x=2, and y=7

(1) What is the value of the symmetric key ?

(2) What is the value of R1 and R2 ? 5(CO2)

(b) Discuss about "card not present" transactions ? How are they handled in Internet shopping ? 5(CO3)

OR

(c) What are the advantages and disadvantages of Public Key Cryptograph over Symmetric key cryptography ? 5(CO3)

5. (a) What are various types of firewalls ? Justify how various attacks can be easily mounted on packet filtering firewalls. 5(CO3)

(b) How internet telephony is different than public telephone networks ? Discuss issues in internet telephony. 5(CO3)

6. (a) Brief about HTTP Protocol.

Enlist and explain HTTP Request Methods with its syntax. 5(CO3)

(b) What do you mean by scalable web applications ? Why multitier architecture is more suitable to scalable web applications ? Justify. 5(CO3)

OR

(c) Compare the Web server and Application server. 5(CO3)