Course Code : CST 413 – 1   MQNR/MW – 19 / 9656

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 answer with the help of neat sketches wherever necessary.
- (4) Due credit will be given to neatness.

1.   (a)   Do you think that Ethernet invention has a major role to play in Internet evolution ? Give significance. Also specify four generations in Ethernet evolution.

3(CO1)

(b)   An IP datagram has arrived with the following information in the header (in hexadecimal) :
45 10 08 FF 00 04 80 00 30 01 00 00 5C 4E 13 42 B1 0C FF 52

(1) What is the size of the data ?

(2) If classful addressing is used, identify the class of Source and Destination addresses.

(3) How many more routers can the packet travel to ?

(4) What is the identification number of the packet ?

(5) What is the type of service ?

(6) This datagram needs to be sent over a link with an MTU of 700 bytes (including header). 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 Multipurpose Internet Mail Extension and its Transfer Encodings. Use the same to encode the following message in base64 and in quoted-printable.
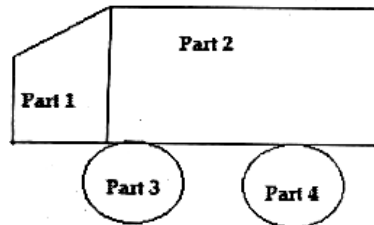**01010111 11110000 01110001 10011001 00001111 10101111**

Compare the result in terms of overhead in bytes.   5(CO1)

(b)   What is meant by Proxy server ? Is NAT a Proxy Server ? Justify your answer.   5(CO1)

3.   (a)   What is RegExp in Perl ? Develop a Perl program segment to replace all the occurrences of consonants by digit '4' using RegExp. Show the output.   5(CO2)

(b)   Differentiate server side and client side image maps. Develop a code to show a client–side image map configuration specification for the given figure. Each part is mapped with different Url. Assume suitable co–ordinates.

5(CO2)

4.   (a)   **Encrypt** the message "If you want to shine like a Sun, first burn like a Sun" using :

(1)   Additive cipher with key = 17

(2)   Mono alphabetic cipher :

Key = (ZEBRASCDFGHIJKLMNOPQTUVWXY)

(3)   Transposition Cipher Key = 65843217 and Key = 85134672

Ignore the space between words.   6(CO3)

OR

(b)   Brief about general schematic of DES. If 50 parties exchange messages securely using DES, How many distinct key values are required ?
6(CO3)

(c)   How is E–business different from Ecommerce ?   4(CO3)

5.   (a)   What are the different issues in Multimedia Streaming ? How it can be handled by RTSP protocol ?   5(CO3)

OR

      (b)   Compare Intranet and Extranet on the basis of Design, pros and cons, design issues.   5(CO3)

      (c)   What is a cookie ? Explain the need of the same with an example.   5(CO3)

6. Solve any **Two** :—

      (a)   With an example, explain diagrammatically the client–server model indicating all the interactions that take place with respect to Web.   5(CO3)

      (b)   Explain Layered system as alternative web architecture with its pros and cons.   5(CO3)

      (c)   What is software architecture ? What is Agile architecture framework ?   5(CO3)