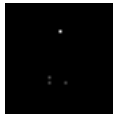


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CS/M.Tech (CSE)/SEM-2/CST-621/09
NEXT GENERATION INTERNET & MULTIMEDIA
SEMESTER - 2



Time : 3 Hours]

[Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions.

5 × 14 = 70

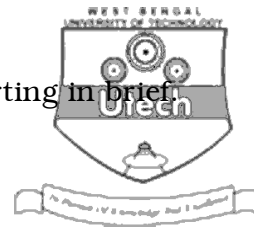
1. a) What is the subnet mask and default subnet mask ? Given the IP address is 18.250.31.14 and the subnet mask is 250.240.0.0, what is the subnet address ? 2 + 1
- b) A company is granted the site address 201.70.64.0 (class C). The company needs six subnets. Design the subnets. 4
- c) What are the four routing methods ? Explain with example. 3
- d) The routing table for router R1 is given below. Draw its topology (diagram). 4

Table

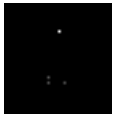
2. a) What is the need of ARP ? Explain the ARP operation. 2 + 3
- b) Describe differentiated service for IP header. Describe checksum procedure for IP header. Explain record route concept as IP option with an example. 2 + 4 + 3



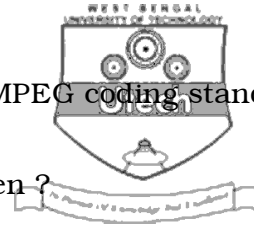
- | | | |
|----|---|-------|
| 3. | a) What are proxy ARP and RARP ? | 2 + 2 |
| | b) Explain the usage of ICMP and type of error reporting in brief. | 6 |
| | c) Why UDP is required ? | 2 |
| | d) What is encapsulation ? | 2 |
| 4. | a) What are the different services provided by TCP ? | 5 |
| | b) How connection establishment, data transfer and connection termination is handled by TCP ? | 7 |
| | c) Describe of flags in the control field of TCP. | 2 |
| 5. | a) What is socket address and why is it required ? | 2 |
| | b) Describe error control mechanism for TCP. | 6 |
| | c) Compare and contrast BOOTP and DHCP protocol. | 6 |
| 6. | a) Describe about name address resolution. | 6 |
| | b) How IPV6 helps to enhance security and authentication ? | 5 |
| | c) Describe the congestion control mechanism for IPV6. | 3 |
| 7. | a) A series of messages is to be transferred between two computers. The message comprises the character from A to F. Analysis has shown that the probability (relative frequency of occurrence) of each character is as follows : | |
| | A = 0.16 | |
| | B = 0.25 | |
| | C = 0.3 | |
| | D = 0.08 | |
| | E = 0.1 | |
| | F = 0.11 | |



Using Huffman coding derive the Huffman Tree and Huffman code for each. 4



- b) Describe JPEG process for image compression. 6
- c) What are the I, P and B frames in the context of MPEG coding standard ? 4
8. a) What are pixel and resolution of a computer screen ? 2
- b) Briefly describe with example (any three). 3 ∞ 4
- i) ISDN/BISDN
 - ii) ATM
 - iii) VOIP
 - iv) MP3.



END