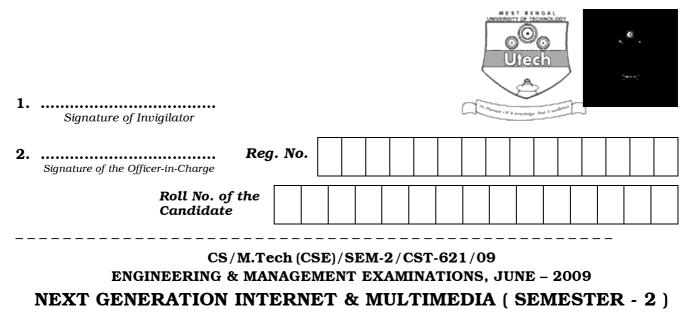
CS/M.Tech(CSE)/SEM-2/CST-621/09 NEXT GENERATION INTERNET & MULTIMEDIA (SEMESTER - 2)



Time : 3 Hours]

[Full Marks: 70

INSTRUCTIONS TO THE CANDIDATES :

- 1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
- 2. You have to answer the questions in the space provided marked 'Answer Sheet'. Write on both sides of the paper.
- 3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
- 4. Read the instructions given inside carefully before answering.
- 5. You should not forget to write the corresponding question numbers while answering.
- 6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
- 7. Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.
- 8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
- 9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

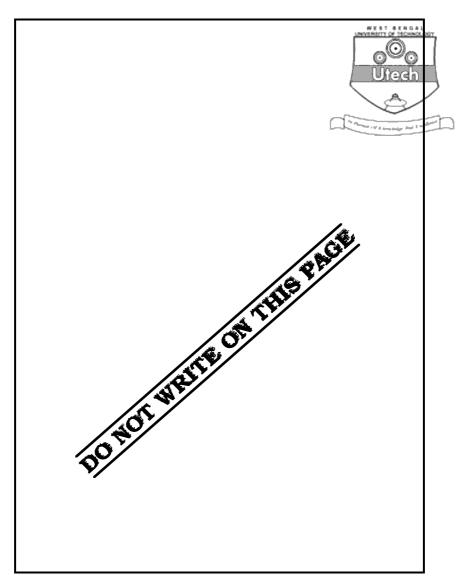
FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

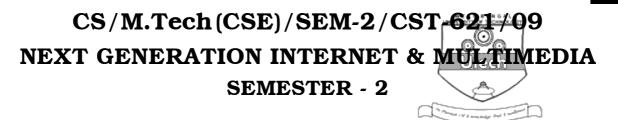
| Question Number | | | | | Total Marks | Examiner's Signature |
|--------------------|--|--|--|--|----------------|-------------------------|
| Marks Obtained | | | | | | |

Head-Examiner/Co-Ordinator/Scrutineer





2



3

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. $5 \times 14 = 70$

- 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.
 - 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

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|-----|------|---|-------------|
| 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 handled by TCP ? | ion is 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 me comprises the character from A to F . Analysis has shown that the probabilit (relative frequency of occurrence) of each character is as follows : | C |

A = 0.16 B = 0.25 C = 0.3 D = 0.08 E = 0.1F = 0.11

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

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|-----|-------|---|---------------|
| | 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 <i>three</i>). | $3 \propto 4$ |
| | | i) ISDN/BISDN | |
| | | ii) ATM | |
| | | iii) VOIP | |
| | | | |

iv) MP3.

END

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