

[Time: 3 Hours]

[Marks:80]

N.B

- (1) Question no. 1 is compulsory.
- (2) Attempt any 3 from the remaining questions.
- (3) Assume suitable data if necessary.
- (4) Figures to right indicate full marks.

- | Q.1 | Attempt any four of the following | Marks |
|------------|--|--------------|
| a) | What is subnetting? Compare subnetting and supernetting | [5] |
| b) | What are three reasons for using layered protocols? What is two possible disadvantages of using layered protocols? | [5] |
| c) | Explain the count to infinity problem in detail. | [5] |
| d) | List two ways in which the OSI reference model and the TCP/IP reference model are the same. Now list two ways in which they differ. | [5] |
| e) | 4-bit data bits with binary value 1010 is to be encoded using even parity Hamming code. What is the binary value after encoding? | [5] |
| | | |
| Q.2 | Attempt the following | |
| a) | Define guided transmission media? Illustrate with diagram the details for coaxial cable? State any 5 comparative characteristics of coaxial cable with fiber optics and twisted pair cables. | [10] |
| b) | Explain how collision handled in CSMA/CD? A 5 km long broadcast LAN uses CSMA has 10^7 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 5×10^8 m/s. What is the minimum packet size that can be used on this network? | [10] |
| | | |
| Q.3 | Attempt the following | |
| a) | An organization has granted a block of addresses starting with 105.8.71.0/24, organization wanted to distribute this block to 11 subnets as follows <ol style="list-style-type: none"> 1. First Group has 3 medium size businesses, each need 16 addresses 2. The second Group has 4 medium size businesses, each need 32 addresses. 3. The third Group has 4 households, each need 4 addresses. Design the sub blocks and give slash notation for each subblock. Find how many addresses have been left after this allocation. | [10] |
| b) | Explain classful IP addressing scheme in detail? List the advantages and disadvantages of classless IP addressing scheme. | [10] |

Q.4 Attempt the following

- a) Explain the open loop congestion control and closed loop congestion control policies in detail [10]
- b) Explain the TCP connection establishment and Connection release. [10]

Q.5 Attempt the following

- a) Explain the concept of sliding protocol? Explain the selective repeat protocol with example? Compare the performance of Selective repeat & Go-back-N protocol. [10]
- b) Explain the link state routing algorithm with example? [10]

Q.6 Write a short note on following

- a) ARP & RARP [10]
- b) DNS [10]

Duration: 3hrs

[Max Marks:80]

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(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR questions [20]
- a State the properties of multimedia security. [5]
 - b Explain the various types of video signals used to represent digital video. [5]
 - c Explain any two applications of Multimedia systems in details. [5]
 - d Differentiate between TIFF and RTF. [5]
 - e List and explain the various components of Multimedia systems. [5]
- 2 a Define the term streaming wrt multimedia systems. Elaborate on the need of good communication service for multimedia streaming? Explain the role of RTP, RTSP, RTCP and RSVP [10]
- b Define compression with respect to multimedia systems. Explain JPEG compression technique in details. [10]
- 3 a What is Steganography? Explain any one method with an example. [10]
- b Discuss the different steps involved in MPEG compression Technique. Also compare with H.261. [10]
- 4 a Explain Huffman encoding with a suitable example [10]
- b State the various parameters that define the quality of an image. Explain in details the effect of these parameters on the storage requirements. [10]
- 5 a What are the characteristics of sound waves? Illustrate the steps to digitize audio data [10]
- b Explain the various multimedia security requirements in details. [10]
- 6 a State the various Authoring systems and explain any one of them in detail. [10]
- b Write a short note on digital signature and multimedia system architectures. [10]

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- 1 Attempt any **FOUR** [20]
a State features of React js.
b What is DTD? Explain internal DTD and external DTD.
c Give characteristics of RIA
d What is session tracking? Show how session tracking is achieved using cookies.
e Differentiate between JSON and XML
- 2 a What is JSX? Explain its attributes with example. [10]
b Explain any 5 semantic tags of HTML5 with example [10]
- 3 a Write a JavaScript that reads ten numbers and displays the count of negative numbers, the count of positive numbers and the count of zero from the list. [10]
b What is JSP? Explain life cycle of JSP [10]
- 4 a Explain the event handling in JavaScript with suitable example. [10]
b Explain CSS3 Animation with example. [10]
- 5 a Write short notes on JDBC [10]
b What is HTTP? Describe structure of HTTP request and response message [10]
- 6 a Discuss about various control structures used in PHP. Give suitable example for each. [10]
b What is AJAX? Explain its role in web application. [10]
