**20CB/DS/CS/IT502**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **December, 2023** | **Common to CB, DS, CS and IT** | | |
| **Fifth Semester** | **Computer Networks** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | Define Computer network. | CO1 | L1 | 1M |
|  | b) | List Out network topologies names. | CO1 | L2 | 1M |
|  | c) | Define Hamming distance. | CO1 | L1 | 1M |
|  | d) | Define flow control. | CO2 | L1 | 1M |
|  | e) | What is the function of transport layer? | CO2 | L1 | 1M |
|  | f) | Mention Congestion Prevention Policies. | CO2 | L1 | 1M |
|  | g) | Give the advantages of hierarchical routing. | CO2 | L2 | 1M |
|  | h) | Define optimality principle. | CO3 | L1 | 1M |
|  | i) | Name techniques used to achieve good Quality of Service. | CO3 | L1 | 1M |
|  | j) | What is the IP protocol? | CO3 | L2 | 1M |
|  | k) | Summarize IP addresses versus port numbers | CO3 | L2 | 1M |
|  | l) | Justify that TCP is a reliable byte stream protocol | CO4 | L3 | 1M |
|  | m) | Classify the advantages of connection-oriented services over connectionless services. | CO4 | L2 | 1M |
|  | n) | Outline the need of DNS. | CO4 | L2 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Illustrate the basic communications model, detailing the roles of sender, receiver, medium, and protocol. | CO1 | L2 | 7M |
|  | b) | Explain the functions and protocols and services of each layer of OSI/ISO reference model. | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 | a) | Draw the TCP/IP network architecture and explain the functionalities of every layer in detail. | CO1 | L2 | 7M |
|  | b) | Define asynchronous and synchronous transmission in digital data communication. What are the key differences between these transmission modes? | CO1 | L2 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Explain about congestion control techniques. | CO2 | L2 | 7M |
|  | b) | Consider the following network with the indicated link cost. Using Bellman-Ford Algorithm, find the shortest path from source node A to all nodes. | CO2 | L3 | 7M |
| **(OR)** | | | | | |
| 5 | a) | What is count-to-infinity problem in distance vector routing protocol? How does it happen? Explain with an example. | CO2 | L2 | 7M |
|  | b) | Write a brief note on store and forward packet switching. | CO2 | L2 | 7M |
| **P.T.O**  **20CS502** | | | | | |
| **Unit-III** | | | | | |
| 6 | a) | Discuss the internetworking of network layer in internet. | CO3 | L2 | 7M |
|  | b) | How crash recovery is managed at the transport layer? | CO3 | L2 | 7M |
| **(OR)** | | | | | |
| 7 | a) | What are the different services provided by transport layer? | CO3 | L2 | 7M |
|  | b) | Explain about IP protocol header format. | CO3 | L3 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Differentiate between TCP and UDP. | CO4 | L2 | 7M |
|  | b) | How does the Remote procedure call works? Explain it. | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Explain about TCP 3-way handshake mechanism for connection establishment. | CO4 | L2 | 7M |
|  | b) | What is DNS? Explain DNS structure for Internet. | CO4 | L2 | 7M |

