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

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **February,2023** | **Common to CB,CS,DS & IT Branches** | | |
| **Fifth Semester** | **Computer Networks** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (14X1 = 14 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X14=56 Marks) |

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| 1. | a) | In what way you can summarize the purpose of layering. | CO1 | L2 | 1M |
|  | b) | Define Simplex, Half-Duplex and Full-Duplex. | CO1 | L1 | 1M |
|  | c) | Define computer Networks. | CO1 | L1 | 1M |
|  | d) | What is the need of Error Detection and Correction in Data Link Layer? | CO2 | L2 | 1M |
|  | e) | Define Flooding. | CO2 | L3 | 1M |
|  | f) | What is Stop-and-Wait Protocol? | CO2 | L2 | 1M |
|  | g) | What do you mean by slow start in TCP congestion? | CO3 | L1 | 1M |
|  | h) | Define QoS. | CO3 | L1 | 1M |
|  | i) | List the different phases used in TCP connection. | CO3 | L1 | 1M |
|  | j) | What are the metrics used by routing protocols? | CO3 | L1 | 1M |
|  | k) | What is SMTP? | CO4 | L1 | 1M |
|  | l) | Define congestion control. | CO4 | L1 | 1M |
|  | m) | How transport layer performs Duplication control? | CO4 | L3 | 1M |
|  | n) | What are the responsibilities of Application Layer? | CO4 | L1 | 1M |
| **Unit -I** | | | | | |
| 2. | a) | How are headers and trailers attached when the data flows from the top layer to the bottom layer in the OSI reference model? | CO1 | L1 | 7M |
|  | b) | Compare and contrast between Synchronous and Asynchronous transmission using an example for each. | CO1 | L3 | 7M |
|  |  | **(OR)** |  |  |  |
| 3. | a) | Discuss in detail about the functions of network layer and transport layers with necessary diagrams. | CO1 | L2 | 7M |
|  | b) | What are the different applications of WAN and MAN? Explain. | CO1 | L1 | 7M |
|  |  | **Unit -II** |  |  |  |
| 4. | a) | Find CRC for the data polynomial x5+x4+x2+1 with generator polynomial x3+ 1. | CO2 | L3 | 7M |
|  | b) | Differentiate between adaptive and non-adaptive routing. Explain the working of 'Hierarchical Routing' using suitable topological structure and routing table. | CO2 | L4 | 7M |
|  |  | **(OR)** |  |  |  |
| 5. | a) | Compare between virtual circuits and Datagram subnets. Also discuss the effect of router failure in virtual circuits. | CO2 | L1 | 7M |
|  | b) | Explain how to control congestion in Datagram subnets. | CO2 | L3 | 7M |
|  |  | **Unit -III** | |  |  |
| 6. | a) | How many networks can each IP address class A, B and C have? Also find the number of hosts per network in each given address class. | CO3 | L4 | 7M |
|  | b) | How is connection established in TCP ? Illustrate multiplexing in TCP. | CO3 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 7. |  | Explain in detail about Leaky and Token bucket algorithms. | CO3 | L3 | 14M |
|  |  | **Unit -IV** |  |  |  |
| 8. | a) | Give the format of the UDP segment and TCP segment? Explain when UDP is preferred to TCP. | CO4 | L1 | 7M |
|  | b) | Explain the working of DNS. | CO4 | L3 | 7M |
|  |  | **(OR)** |  |  |  |
| 9. | a) | Differentiate between TCP and UDP | CO4 | L2 | 7M |
|  | b) | Discuss in detail about the connection establishment and release in TCP. | CO4 | L3 | 7M |

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