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| **B. E. Degree (Autonomous) Fifth Semester End Examination (SEE), Feb/March 2024**  **Department of Computer Science & Engineering**  **Computer Networks** | | | | | | | | | | | | | | | | | | | |
| **(Model Question Paper - I)** | | | | | | | | | | | | | | | | | |  |  |
| **[ Time: 3 Hours ]** | | | | | | | | | | |  | | | | **[ Maximum Marks: 100 ]** | | | | |
|  | | | | | | | **Instructions to students:**  **Answer FIVE FULL questions.** | | | | | | | | |  | |  |  |
|  | | | | | | | | | | | | | | | | | |  |  |
| **Q.No** | | | | **Questions** | | | | | | | | | | | | | **Marks** | **Course Outcomes** | **RBT Level** |
| **1** | **a)** | | | With neat diagram, explain the five components of data communication | | | | | | | | | | | | | **[06 M]** | **CO1** | **L2** |
|  | **b)** | | | Explain the communication between two devices with data flow diagram | | | | | | | | | | | | | **[06 M]** | **CO1** | **L2** |
|  | **c)** | | | Explain all physical topologies available in the computer network | | | | | | | | | | | | | **[08 M]** | **CO1** | **L2** |
|  |  | | | **OR** | | | | | | | | | | | | |  |  |  |
| **2** | **a)** | | | Explain circuit switched and packet switched networks with a neat diagram. | | | | | | | | | | | | | **[08 M]** | **CO1** | **L1** |
|  | **b)** | | | Explain TCP/IP protocol suit | | | | | | | | | | | | | **[08 M]** | **CO1** | **L1** |
|  | **c)** | | | List the different performance criteria of data communicaton | | | | | | | | | | | | | **[04 M]** | **CO1** | **L1** |
| **3** | **a)** | | | How does single-bit error differ from burst error? What is the definition of a linear block code? What is the Hamming distance between 11111000 and 100000111? | | | | | | | | | | | | | **[10 M]** | **CO2** | **L4** |
|  | **b)** | | | A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x4+x+1. What is the actual bit string transmitted? | | | | | | | | | | | | | **[10 M]** | **CO2** | **L4** |
|  |  | | | **OR** | | | | | | | | | | | | |  |  |  |
| **4** | **a)** | | | Explain the working of Stop-and-wait Protocol with suitable example | | | | | | | | | | | | | **[07 M]** | **CO2** | **L2** |
|  | **b)** | | | Explain the following Random Access Protocols   1. CSMA/CD 2. CSMA/CA | | | | | | | | | | | | | **[07M]** | **CO2** | **L2** |
|  | **c)** | | | Define Framing and the reason for its need. | | | | | | | | | | | | | **[06 M]** | **CO2** | **L2** |
| **5** | **a)** | | | With suitable diagram explain distance vector routing. | | | | | | | | | | | | | **[10 M]** | **CO3** | **L2** |
|  | **b)** | | | Explain the different fields of IPV4 header with the help of a diagram. | | | | | | | | | | | | | **[10 M]** | **CO3** | **L2** |
|  |  | | | **OR** | | | | | | | | | | | | |  |  |  |
| **6** | **a)** | | | Explain Leaky Bucket algorithm. | | | | | | | | | | | | | **[10 M]** | **CO3** | **L2** |
|  | **b)** | | | Explain link state routing and also apply Dijkstra algorithm to find the least cost path tree. | | | | | | | | | | | | | **[10 M]** | **CO3** | **L2** |
| **7** | **a)** | | | Explain three-way handshaking in TCP connection setup with suitable diagram | | | | | | | | | | | | | **[08 M]** | **CO4** | **L2** |
|  | **b)** | | | Briefly describe the congestion control in TCP. | | | | | | | | | | | | | **[06 M]** | **CO4** | **L2** |
|  | **c)** | | | Explain the significance of the following fields in the TCP segment. i) Sequence number ii) Acknowledgement number iii) window size | | | | | | | | | | | | | **[06 M]** | **CO4** | **L2** |
|  |  | | | **OR** | | | | | | | | | | | | |  |  |  |
| **8** | **a)** | | | Define the term autonomous system (AS) as well as three categories of AS | | | | | | | | | | | | | **[10 M]** | **CO4** | **L1** |
|  | **b)** | | | Explain the following  i)RIP ii) OSPF | | | | | | | | | | | | | **[10 M]** | **CO4** | **L2** |
| **9** | **a)** | | | Explain the architecture of electronic mail. | | | | | | | | | | | | | **[08 M]** | **CO4** | **L2** |
|  | **b)** | | | Explain the following i) HTTP ii) FTP iii) www | | | | | | | | | | | | | **[12 M]** | **CO4** | **L2** |
|  |  | | | **OR** | | | | | | | | | | | | |  |  |  |
| **10** | **a)** | | | Explain with example ,the working of Hyper Text Transfer Protocol | | | | | | | | | | | | | **[07 M]** | **CO4** | **L2** |
|  | **b)** | | | List out the functions performed by the network management system | | | | | | | | | | | | | **[07 M]** | **CO4** | **L1** |
|  | **c)** | | | Define account management and its purpose. | | | | | | | | | | | | | **[06 M]** | **CO4** | **L2** |