**20EC506/JO**

**Hall Ticket Number:**

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**III/IV B.Tech (Supplementary) DEGREE EXAMINATION**

January, 2024 Electronics & Communication Engineering

**Fifth Semester Data Communication and Computer Networks**

**Time:** Three Hours **Maximum:** 70 Marks

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| *Answer Question No.1 compulsorily.* | (14X1 = 14 Marks) |
| *Answer ONE question from each unit.* | (4X14=56 Marks) |

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| 1. | a) | What is the role of computer networks in resource sharing? | CO1 | 1M |
|  | b) | What is the purpose of a router in a computer network? | CO1 | 1M |
|  | c) | What is the main difference between TCP and UDP? | CO1 | 1M |
|  | d) | List out the functions of data link layer. | CO2 | 1M |
|  | e) | Define cyclic redundancy check. | CO2 | 1M |
|  | f) | What is channel allocation problem? | CO2 | 1M |
|  | g) | What is the use of CSMA/CA? | CO2 | 1M |
|  | h) | What is the difference between Ethernet and fast Ethernet? | CO3 | 1M |
|  | i) | Differentiate Hub and Switch. | CO3 | 1M |
|  | j)  k)  l)  m)  n) | List out the network layer design issues.  Write the merits of world wide web.  What is MIME?  Define video on demand.  What is the difference between audio compression and video compression? | CO3  CO4  CO4  CO4  CO4 | 1M  1M  1M  1M  1M |
| **Unit –I** | | | | |
| 2. | a) | What are two reasons for using layered protocols? What is one possible disadvantage of using layered protocols? | CO1 | 7M |
|  | b) | Is the Nyquist theorem true for high-quality single-mode optical fiber or only for  copper wire? Discuss in detail. | CO1 | 7M |
| **(OR)** | | | | |
| 3. | a) | List two advantages and two disadvantages of having international standards for network  protocols. | CO1 | 7M |
|  | b) | Illustrate the timing of events in circuit switching and packet switching. | CO1 | 7M |
| **Unit -II** | | | | |
| 4. | a) | Explain error detection and correction. | CO2 | 7M |
|  | b) | List out and explain five key assumptions for Dynamic Channel Allocation. | CO2 | 7M |
| **(OR)** | | | | |
| 5. | a) | Explain channel allocation problem. | CO2 | 7M |
|  | b) | Explain multiple accesses, CSMA. | CO2 | 7M |
| **Unit -III** | | | | |
| 6. | a) | Store-and-forward switches have an advantage over cut-through switches with respect  to damaged frames. Explain what it is. | CO3 | 7M |
|  | b) | Explain Virtual LAN. | CO3 | 7M |
| **(OR)** | | | | |
| 7. | a) | What is the maximum size of the data field for a 3-slot Bluetooth frame at basic rate?  Explain your answer. | CO3 | 7M |
|  | b) | Explain wireless LAN. | CO3 | 7M |
| **Unit -IV** | | | | |
| 8. | a) | What are the two main transport layer protocols commonly used in networking, and how do they differ? | CO4 | 7M |
|  | b) | List out and explain DNS resource record types. | CO4 | 7M |
| **(OR)** | | | | |
| 9. | a) | Discuss the Architecture of the email system. | CO4 | 7M |
|  | b) | Explain in detail elements of Transport protocol. | CO4 | 7M |

