**20EC507/PE**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **January, 2024** | **Electronics and Communications Engineering** | | |
| **Fifth Semester** | **Telecommunication Switching Systems and 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) | What are the fundamental components of a switching system? | CO1 | L1 | 1M |
|  | b) | How does a Three Stage Network differ from a Two Stage Network? | CO1 | L2 | 1M |
|  | c) | In the context of electronic space division switching, what is the significance of n stage networks? | CO1 | L2 | 1M |
|  | d) | Define Basic Time Division Time Switching and briefly explain its role in time division switching. | CO2 | L1 | 1M |
|  | e) | What is bitrate and baud rate. | CO2 | L2 | 1M |
|  | f) | What is the purpose of a Numbering Plan in a telephone network | CO2 | L1 | 1M |
|  | g) | Name two switching techniques commonly used for Data Transmission in communication networks. | CO3 | L1 | 1M |
|  | h) | Classify networks according to geographical area. | CO3 | L1 | 1M |
|  | i) | What are Local Area Networks (LANs), and what is their primary purpose? | CO3 | L1 | 1M |
|  | j) | What motivated the development of Integrated Services Digital Network (ISDN)? | CO4 | L2 | 1M |
|  | k) | Differentiate between B and D channels in ISDN's Transmission Channels. | CO4 | L2 | 1M |
|  | l) | What is the purpose of Numbering and Addressing in the context of ISDN? | CO4 | L1 | 1M |
|  | m) | Name two types of Major Telecommunication Networks. | CO1 | L1 | 1M |
|  | n) | What is the need of ISDN. | CO2 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain the basics of a switching system, outlining the essential components and their functions. | CO1 | L1 | 7M |
|  | b) | Compare and contrast Manual Switching Systems with Automated Switching Systems and highlight the advantages and disadvantages of each approach | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 | a) | Discuss about centralized SPC and its limitations in detail. | CO1 | L3 | 7M |
|  | b) | Explore the concept of Two Stage Networks in electronic space division switching. | CO1 | L2 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Explain the concept of Basic Time Division Time Switching in the context of time division switching and discuss how it operates, its key components | CO2 | L1 | 7M |
|  | b) | Discuss the design and operational aspects of Three Stage Combination Switching. | CO2 | L1 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Examine the Subscriber Loop System in telephone networks. Discuss its role in connecting subscribers to the network | CO2 | L2 | 7M |
|  | b) | Explore the importance of Numbering Plan and Charging Plan in telephone networks. | CO2 | L2 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | Discuss the significance of Data Transmission in Public Switched Telephone Networks (PSTNs), highlighting its role in modern telecommunications. | CO3 | L2 | 7M |
|  | b) | Compare and contrast two switching techniques commonly used for Data Transmission in communication networks, emphasizing their advantages and limitations. | CO3 | L2 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Differentiate between Link-to-Link Layers and End-to-End Layers in data communication. | CO3 | L2 | 7M |
|  | b) | Explain the characteristics and applications of Local Area Networks (LANs) and Metropolitan Area Networks (MANs) | CO3 | L1 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Explain the components of the Network and Protocol Architecture in ISDN, emphasizing their roles in delivering integrated services. | CO4 | L2 | 7M |
|  | b) | Explain the principles and evaluation of ISBN. | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Describe different channels of ISBN. | CO4 | L2 | 7M |
|  | b) | Provide an overview of Numbering and Addressing in ISDN. | CO4 | L2 | 7M |

