

Code No: RT31052

**R13****SET - 1**

**III B. Tech I Semester Supplementary Examinations, May- 2018**  
**DATA COMMUNICATION**  
(Common to Computer Science Engineering and Information Technology)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answering the question in **Part-A** is compulsory  
3. Answer any **THREE** Questions from **Part-B**
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**PART -A**

- |   |    |  |      |
|---|----|--|------|
| 1 | a) | Define data communication. What are the elements of data communication?    | [3M] |
|   | b) | What is Optical fiber? What are the disadvantages of Optical Fiber Cables? | [4M] |
|   | c) | Give the concept of delta modulation.                                      | [4M] |
|   | d) | What is Skip Distance?   | [3M] |
|   | e) | What is Global system for Mobile Communications?                           | [4M] |
|   | f) | Distinguish between synchronous and Asynchronous Voice-Band Modems.        | [4M] |

**PART -B**

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|---|----|--|------|
| 2 | a) | With neat sketch explain the layered network structure.                                      | [4M] |
|   | b) | Explain about Serial and parallel Data Transmission.   | [8M] |
|   | c) | Define i) Information Capacity and ii) Bit rate  | [4M] |
| 3 | a) | Write about the two commonly used fiber types due to variations in the Material Composition. | [3M] |
|   | b) | Derive the Expression for quantum efficiency and optical power emitted from the LED.         | [8M] |
|   | c) | Derive the general equation of coupling loss in single mode fiber connectors.                | [5M] |
| 4 | a) | Explain in detail about the operation of PCM transmitter and receiver.                       | [8M] |
|   | b) | Discuss about Digital Line Encoding in detail.   | [8M] |
| 5 | a) | Explain the Microwave communication system with neat block diagram.                          | [8M] |
|   | b) | Derive the expression for Free-Space Path Loss.  | [8M] |
| 6 | a) | Explain the Basic Telephone Call Procedures.   | [8M] |
|   | b) | Describe the digital cellular mobile systems and the limitations of AMPS standard.           | [8M] |
| 7 | a) | What are the different methods of error detection and explain any two methods.               | [8M] |
|   | b) | Write short notes on Voice- Band Data Communication Modems.                                  | [8M] |

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