Code No: RT31052   **R13**   SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017
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) What are the differences between parallel and serial transmission?
   b) Define Snell's law.
   c) What is the significance of Companding?
   d) Define Electromagnetic Radiation.
   e) What is Interim Standard?
   f) What is the need of modern synchronization?

PART -B

2 a) Draw basic block diagram of data communication systems and explain different components of system.
   b) Give some advantages & disadvantages of combining the session, presentation and application layer in the OSI model into one single application layer in the internet model.
   c) Define Electrical Noise and Signal-to-Noise Ratio.

3 a) Explain the Characteristics of Electromagnetic Waves
   b) List the advantages and disadvantages of Optical fiber.

4 a) Explain linear and non linear PCM codes.
   b) Define frequency division multiplexing? Explain the FDM multiplexing and de multiplexing process with neat diagrams.

5 a) Explain the Optical Properties of Radio Waves.
   b) Define the terms Skip Distance, Free-Space Path Loss.

6 a) Discuss about Electronic Telephones.
   b) With neat sketch explain the architecture of Global system for Mobile Communications.

7 a Explain voice band data communication modems.

   b Write about data communication character codes and bar codes.

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Code No: RT31052   **R13**   SET - 2

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017
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 single-bit error and burst error and explain its effect on a data unit.
   b) What are the applications of optical fiber communication
   c) What are the draw backs of Delta Modulation
   d) Define Electromagnetic Polarization
   e) Write short notes on AMPS System.
   f) Explain the concept of error detection and correction.

PART -B

2 a) List the three techniques in serial transmission and explain the transmission in detail.
   b) Explain the functions of session, presentation and application layer in detail.
   c) What is data communications? What are its characteristics? Explain.

3 a) Define transmission medium. How do guided media differ from unguided media?
   b) With neat sketch draw Block Diagram of the Optical Fiber Communications System and explain the principle of operation.

4 a) Explain the PCM Technique of changing analog signal to digital signal with neat diagrams of PCM encoder & Decoder
   b) Define and explain the concept of Wavelength division multiplexing.

5 a) Explain the following microwave components:
       (a) Gyrator   (b) Isolator   (c) Circulator
   b) Define the terms Electromagnetic Polarization, Electromagnetic Radiation

6 a) With neat sketch explain the Personal Communications system.
   b) What are the advantages and draw backs of Cordless Telephones?

7 a Discuss the necessity of digital service unit and channel service unit.
   b Explain voice band modem with neat sketch.

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Code No: RT31052   (**R13**)   (SET - 3)

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017
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) Distinguish between data rate and signal rate.
   b) What are the Modes of Optical Fiber?
   c) What are the characteristics of T Carrier systems?
   d) Define Free-Space Path Loss.
   e) Explain about Paging systems.
   f) Explain the need of bar codes.

PART -B

2. a) Explain OSI Reference model with neat figure.
   b) Explain the importance of layered study of communication network with definition to layer, service and protocols.

3. a) Describe optical fiber cable. What is the purpose of cladding in OFC?
   b) Discuss about Transverse Electromagnetic Waves.

4. a) Explain non uniform quantization and how to recover original signal using PCM decoder.
   b) Explain the concepts of multiplexing and list the categories of multiplexing?

5. a) With neat sketch Explain Satellite Communications Systems.
   b) Explain Terrestrial Propagation of Electromagnetic Waves in detail.

6. a) What are the advantages of Digital Cellular Telephone over analog Cellular Telephone?
   b) Explain in detail about the Subscriber Loop.

7. a) mpare the Asynchronous voice band modem with synchronious voice band modem.
   b) Explain the role of Hamming code in error detection and correction with example.

Code No: RT31052   R13   SET - 4

III B. Tech I Semester Regular/Supplementary Examinations, October/November- 2017
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) What is protocol? What are its key elements?
   b) What is the purpose of cladding in OFC?
   c) Explain in detail synchronous Optical Network
   d) Define Skip Distance
   e) What is Call Progress Tones and Signals
   f) Classify the voice band modems.

PART -B

2 a) What are standards? Name any four standard organizations for Data Communications
   b) Compare OSI and TCP/IP models.
   c) What are the uses of a layered network model?

3 a) What are the characteristics of Metallic Transmission Lines?
   b) What are the Losses in Optical Fiber Cables? Explain.

4 a) Compare and contrast PCM and DM.
   b) Define time division multiplexing? Explain the TDM multiplexing and de multiplexing process with neat diagrams.

5 a) With neat sketch Explain Microwave Communications Systems.
   b) Explain about Optical Properties of Radio Waves.

6 a) Explain the Call Procedures of Basic Telephone.
   b) What are the features of Second-Generation Cellular Telephone Systems?

7   Write short notes on:
      a) AT command set (b) 56K modems

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