

Scheme - I

Sample Question Paper

Program Name : Diploma in Industrial Electronics
Program Code : IE
Semester : Fifth
Course Title : Data Communication Techniques
Marks : 70

22539

Time : 3 Hrs.

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

10 Marks

- a) Define half duplex and full duplex communication
- b) List the Limitation of digital communication system
- c) Define Baud rate and Bit rate
- d) State the strength and limitation of fiber optic system
- e) Draw the OSI Reference model with proper labels.
- f) List the Basic functions of Router.
- g) Write functions of layers of Bluetooth Architecture in short.

Q.2) Attempt any THREE of the following.

12 Marks

- a) Explain in detail serial and parallel communication
- b) Define pulse modulation? List the Advantage of pulse modulation over amplitude modulation.
- c) List advantages and disadvantages of digital communication.
- d) Describe FSK principles. Draw FSK Modulator and Receiver useful in applications.

Q.3) Attempt any THREE of the following.

12 Marks

- a) Compare AM, FM, and PM on the basis of following:
 - i) Definition ii) Waveform iii) Bandwidth iv) Modulation index
- b) Enlist any four applications each of ASK,PSK.
- c) Compare the any two characteristics of reflection and refraction in fiber optics.
- d) State the RS-232 interface with its advantages and disadvantages and write any two applications of it.

Q.4) Attempt any THREE of the following.

12 Marks

- a) Draw and explain working principle of Laser Diode.
- b) Differentiate between twisted pair cables UTP and STP with respect to following factor:
 - Band width capacity
 - Node capacity
 - Attenuation
 - Cost
- c) Explain the construction of Optocoupler with proper diagram.
- d) Explain Working of fiber optic cable .Give its advantages and disadvantages.
- e) Explain in detail functioning of MODEM.

Q.5) Attempt any TWO of the following.

12 Marks

- a) Compare characteristics of Fiber optics with respect to following terms:
 - i) Cable construction
 - ii) Fiber Optic cable mode
 - iii) Fiber Optic cable losses
- b) Explain situation where external MODEM is required? Write basic specifications of External MODEM.
- c) Identify network topology and suggest specifications for computer laboratory of having 10 computers with Server in a network and having internet facility. Also draw network layout of computer laboratory.

Q.6) Attempt any TWO of the following.

12 Marks

- a) Write parameters as per applications of ASK,PSK, FSK in data communication.
- b) Write the situation where following light sources and detectors are useful in data communication:
 - LED
 - Photo Transistor,
 - Laser Diode
- c) Explain Architecture of USB and state different four applications where USB can be used.

Scheme - I

Sample Test Paper - I

Program Name : Diploma in Industrial Electronics
Program Code : IE
Semester : Fifth
Course Title : Data Communication Techniques
Marks : 20

22539

Time : 1 Hour

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) Define Half- duplex and full duplex communication.
- b) State sampling theorem?
- c) Define AM? List its disadvantages.
- d) Draw the block diagram of digital communication system.
- e) State Baud rate and Bit rate.
- f) List the limitations of digital communication system.

Q.2 Attempt any THREE.

12 Marks

- a) Explain with neat diagram sampling process to generate natural samples.
- b) Draw the block diagram of PCM transmitter and receiver and Explain.
- c) What are the advantages and disadvantages of digital communication?
- d) Describe FSK principles? Draw FSK modulator and Receiver.
- e) Compare AM , FM and PM on the basis of definition , waveform ,bandwidth ,modulation index

Scheme - I

Sample Test Paper - II

Program Name : Diploma in Industrial Electronics
Program Code : IE
Semester : Fifth
Course Title : Data Communication Techniques
Marks : 20

22539

Time : 1 Hour

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) List the Transmission media.
- b) State strength and limitations of fiber optic system.
- c) Draw the OSI Reference model.
- d) State Bluetooth Architecture and its layer.
- e) Draw fiber optical cable.
- f) List the Basic Functions of networking device.

Q.2 Attempt any THREE.

12 Marks

- a) Explain working of fiber optic cable? Give its advantages and disadvantages.
- b) Describe the Architecture of Bluetooth technology.
- c) Draw a neat diagram and describe the working of Star topology.
- d) Explain single mode and step index fiber mode working process.
- e) State and Explain network control devices.