



CBGS SCHEME

21ELN14/24

First/Second Semester B.E. Degree Examination, June/July 2023 Basic Electronics and Communication Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With neat block diagram, explain the working of a DC power supply. Also mention the principal components used in each block. (08 Marks)
- b. Mention advantages of negative feedback in amplifiers circuits. With relevant equations and diagram, explain the concept of negative feedback. (06 Marks)
- c. With circuit diagram and waveform show how operational amplifier work as inverting amplifier. (06 Marks)

OR

- 2 a. Explain the working of Bi-phase Full wave rectifier circuit with neat diagram. (08 Marks)
- b. Explain the operation of a simple Zener voltage regulator. (06 Marks)
- c. With the circuit diagram, explain the voltage doubler. (06 Marks)

Module-2

- 3 a. With the help of truth table, explain full adder using logic gates. (08 Marks)
- b. Design a 3 to 8 Decoder and show its implementation using basic gates. (06 Marks)
- c. Write a note on different data types mentioning the bit size and range of values supported. (06 Marks)

OR

- 4 a. Design a 4×1 multiplexer using basic gates. (08 Marks)
- b. Discuss the design of a 3-bit asynchronous up-counter. (06 Marks)
- c. Design a 4-stage shift register using J-K bistables. (06 Marks)

Module-3

- 5 a. Compare Embedded systems and general computing systems. Also provide major application areas of Embedded systems. (08 Marks)
- b. Define sensors and give its classification with examples. (06 Marks)
- c. Explain the following external communication interfaces : USB, Wi-Fi (06 Marks)

OR

- 6 a. Explain the working principle of operation and applications of stepper motor. (08 Marks)
- b. Bringout the differences between RISC and CISC, Harvard and Neumann. (06 Marks)
- c. Write a note on classification of embedded systems. (06 Marks)

Module-4

- 7 a. Describe the blocks of the basic communication systems. (08 Marks)
- b. Describe the classification of RF (Radio Frequency) spectrum with applications in communication systems. (06 Marks)
- c. Discuss the various Multiple Access Techniques used in cellular network. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Define and explain SNR, Noise Figure channel types, amplitude modulation. (08 Marks)
b. Explain different types of radio wave propagation with a neat diagram. (06 Marks)
c. Present the architecture of a wireless communication transmitter and its modulation scheme QPSK with waveforms. (06 Marks)

Module-5

- 9 a. Bring out the features of FM transmitter FM receiver and repeaters in microwave communication. (08 Marks)
b. Draw the schematic diagram of a cellular telephone system and define its basic components. (06 Marks)
c. List the requirement identified for the 4G technology. (06 Marks)

OR

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- 10 a. With the help of diagram, discuss the following types of network topologies. Ad – Hoc network Topology, Infrastructure Network Topology. (08 Marks)
b. Draw the block diagram, showing the basic elements of a satellite communication system and briefly explain them. (06 Marks)
c. Explain the optical fiber communication system with a block diagram. (06 Marks)
