



CBCS SCHEME

18EE644

Sixth Semester B.E. Degree Examination, June/July 2023 Embedded System

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What is an embedded system? Explain different hardware units of embedded system with relevant block diagram. (10 Marks)
- b. Explain the different ROM'S and RAM's used in embedded systems. (10 Marks)

OR

- 2 a. Classify the embedded system depending on the hardware and software configuration and explain in brief the skills required for an embedded system designer. (10 Marks)
- b. Describe the architectural features of a 68HC 11 with the help of a block diagram. (10 Marks)

Module-2

- 3 a. With a neat block diagram outline the operation of a three bit DAC with an R – 2R ladder network. (10 Marks)
- b. Discuss BiFET analog multiplexer and infer how an analog multiplexer issued to make a variable gain amplifier. (10 Marks)

OR

- 4 a. With a neat diagram and necessary waveforms, explain 16 bit dual slope ADC. (10 Marks)
- b. Discuss the various issues when selecting a DAC. (10 Marks)

Module-3

- 5 a. With a neat block diagram, explain the data acquisition system for temperature measurement. (10 Marks)
- b. Discuss the various design challenges of embedded systems. (10 Marks)

OR

- 6 a. With a neat block diagram, explain general instrumentation/control system. (10 Marks)
- b. Explain the hardware software trade off. What are the advantages and disadvantages of software implementation instead of hardware implementation? (10 Marks)

Module-4

- 7 a. Explain RTOS architecture. List out the advantages and disadvantages of the same. (10 Marks)
- b. With reference to data structures define :
i) Array ii) Queue iii) Lest iv) Table v) Stack. (10 Marks)

OR

- 8 a. Explain Round Robin architecture with interrupts with the help of its pseudo code. Also discuss the draw backs of this architecture. (10 Marks)
- b. With the help of diagram, explain task states and scheduler of the RTOS. (10 Marks)

Module-5

- 9 a. With reference to serial I/O define :
- i) Frame
 - ii) Full duplex communication system
 - iii) Half duplex communication system
 - iv) Simplex communication system
 - v) Baud rate. (10 Marks)
- b. What is switch debounce? Discuss how capacitor eliminates the bounce of a switch when :
- i) pressed ii) released. (10 Marks)

OR

- 10 a. Explain memory mapped I/O and isolated I/O computer architecture. (10 Marks)
- b. Explain general approach to memory interfacing on a 6811 in expanded mode. (10 Marks)
