



CBCS SCHEME

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18EE644

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024

Embedded Systems

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define embedded system. Explain the main components of embedded system. (07 Marks)
- b. Describe the architectural features of 6811 with a suitable block diagram. (10 Marks)
- c. How are embedded systems classified? (03 Marks)

OR

- 2 a. Discuss about the different types of ROMS and RAMS used in embedded systems. (06 Marks)
- b. Explain the various registers of : i) 6808 ii) 6811 microcontroller. (08 Marks)
- c. What are the skills required for an embedded system designer. (06 Marks)

Module-2

- 3 a. Draw the block diagram of embedded systems SOC barcode scanner and explain. (10 Marks)
- b. Explain analog to digital converter with neat circuit diagram. (05 Marks)
- c. Explain the issues in selecting the DAC. (05 Marks)

OR

- 4 a. Explain the operation of a bit DAC with R – 2R ladder network with a aid of neat diagram. (08 Marks)
- b. Explain the sample and hold circuit with neat circuit diagram and briefly explain its necessary. (06 Marks)
- c. What are the applications of embedded system? (06 Marks)

Module-3

- 5 a. Explain embedded system design technology. (07 Marks)
- b. Explain market window with an example. (05 Marks)
- c. Discuss the various design challenges of embedded system. (08 Marks)

OR

- 6 a. Explain the different issues in embedded design in brief. (10 Marks)
- b. What are the thermal considerations in embedded system? (04 Marks)
- c. Define the following with respect to data acquisition system :
i) Accuracy
ii) Resolution
iii) Precision. (06 Marks)

Module-4

- 7 a. What are the advantages of high level languages and assembly language programming? (06 Marks)
- b. What is task? Describe the three states in which a task can exist. (07 Marks)
- c. Explain Round-Robin architecture with suitable code and example. (07 Marks)

OR

- 8 a. Describe various data structures used in embedded C. (10 Marks)
b. With the help of pseudo code, explain the round robin with interrupts architecture with an example. (10 Marks)

Module-5

- 9 a. Discuss the following with respect to serial I/O. (10 Marks)
i) Frame
ii) Full duplex communication.
iii) Half duplex communication
iv) Simplex communication
v) Baud rate.
b. Explain three basic approaches for interfacing multiple keys to a single 8 bit parallel port. (10 Marks)

OR

- 10 a. What is switch debounce? Discuss how a capacitor eliminates switch debounce when : (10 Marks)
i) Pressed
ii) Released. (06 Marks)
b. Explain memory mapped I/O with neat block diagram. (04 Marks)
c. State advantages of LCD over LED.

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