

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.
i) Frame
ii) Full duplex communication.
iii) Half duplex communication
iv) Simplex communication
v) Baud rate. (10 Marks)
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 :
i) Pressed (10 Marks)
ii) Released. (06 Marks)
b. Explain memory mapped I/O with neat block diagram. (06 Marks)
c. State advantages of LCD over LED. (04 Marks)
