CBCS SCHEME

USN | | | | | | | | | | |

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)**

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