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## Sixth Semester B.E. Degree Examination, July/August 2022

### 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. Define embedded Systems. Explain the different types of embedded systems. (10 Marks)  
b. Explain the registers of 6808 and 6811 microcontrollers. (10 Marks)

OR

- 2 a. With the help of a block diagram. Explain the 6811 EVB system. (10 Marks)  
b. Explain the different types of memories used in embedded systems. (10 Marks)

#### Module-2

- 3 a. Discuss briefly the parameters considered in the selection of DAC. (10 Marks)  
b. With the help of a neat circuit diagram, explain the operation of 3-bit DAC using R – 2R ladder network. (10 Marks)

OR

- 4 a. With the help of suitable diagram and necessary waveforms explain an 8-bit Ramp ADC. (10 Marks)  
b. Explain the working of sample and hold circuit. Also explain its necessity. (10 Marks)

#### Module-3

- 5 a. Explain the various design metrics to be considered by design engineers while designing an embedded system. (10 Marks)  
b. Explain the hardware software tradeoffs involved in embedded system design and implementation. (10 Marks)

OR

- 6 a. Explain the ideal top down design process and the three main approaches used to improve the design process for increased productivity. (10 Marks)  
b. Explain the signal paths that exist in a data acquisition system and discuss the specifications of qualitative Data Acquisition System (DAS). (10 Marks)

#### Module-4

- 7 a. With the help of pseudocode explain round robin architecture with example. (10 Marks)  
b. Explain the use of binary semaphore to solve the problem of shared data? (10 Marks)

OR

- 8 a. Compare the characteristics of various software architectures. (10 Marks)  
b. What is a task? Explain the different states in which a task can exist. (10 Marks)

#### Module-5

- 9 a. Explain full duplex, half duplex and simplex communication system. (10 Marks)  
b. Explain memory mapped input/output and isolated input/output architecture. (10 Marks)

OR

- 10 a. Interface a 6811 microcontroller to a 32k by 8 bit PROM. Also draw read and write timing diagram. (10 Marks)  
b. Explain the three basic approaches to interfacing multiples switches to a single 8-bit parallel port. (10 Marks)

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