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15CS563

Fifth Semester B.E. Degree Examination, Dec.2019/Jan:2020
Embedded Systems

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Write the difference between microprocessor and micro controller. (06 Marks)
b. Briefly explain the challenges faced by engineers in Embedded System Designing. (10 Marks)

OR

- 2 a. How do the classify embedded system and explain the skills required for an embedded system designer. (08 Marks)
b. With neat diagram, explain the systematic process of Automatic chocolate vending machine. (08 Marks)

Module-2

- 3 a. Explain the various modes of serial communication using serial devices with one example each. (08 Marks)
b. Explain the following : i) I²C Bus ii) CAN Bus iii) USB Bus (08 Marks)

OR

- 4 a. Write notes on : i) HTTP ii) TCP iii) Ethernet. (08 Marks)
b. Describe and compare UART, RS232C, SDIO device. (08 Marks)

Module-3

- 5 a. Explain software interrupts and interrupt service Routine with example. (08 Marks)
b. What is DMA? Explain DMA controller with help of block diagram and write their uses. (08 Marks)

OR

- 6 a. Explain with example the working of Busy — Wait approach without interrupt service mechanism. (08 Marks)
b. Explain with neat diagram how parallel and serial port devices are used in system. (08 Marks)

Module-4

- 7 a. Define Task. Explain with an example the five state of task. (08 Marks)
b. Write short notes on : i) Message Queue function ii) Pipe function. (08 Marks)

OR

- 8 a. Write the use of multiple semaphores for synchronizing the task. (06 Marks)
b. Explain socket function and write their application. (06 Marks)
c. When are RPC's used? List 2 examples. (04 Marks)

Module-5

- 9 a. Explain: i) Timer function ii) Event function. (08 Marks)
b. Explain the software tools and modules for implementing an embedded system. (08 Marks)

OR

- 10 a. With neat diagram, explain the Petri net model for the critical section problem by pre-emptive scheduler. (08 Marks)
b. What are the security issues in embedded systems? Explain the security protection mechanism for Cig:;/. (08 Marks)