CBCS SCHEME

USN | | | | §17CS563

Fifth Semester B.E. Degree Examination, Dec.2019/jan.2020
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. Explain the embedded system hardware with a neat diagram. **(10 Marks)**
b. Explain the process of converting a C program in to ROM image. **(06 Marks)**
c. Briefly explain the characteristics of embedded systems. **(04 Marks)**

OR

2 a. Briefly, explain any five design metrics. **(05 Marks)**
b. Discuss the challenges faced by designers during embedded system design. **(05 Marks)**
c. Give the classification of embedded systems and skills required for designer of an embedded system. **(10 Marks)**

Module-2

3 a. With diagram, explain synchronous serial input and synchronous serial output operations. **(08 Marks)**
b. Explain about the sophisticated interfacing features in device ports. **(08 Marks)**
c. Write a note on watch dog timer. **(04 Marks)**

OR

a. Explain I^2C and CAN bus protocols. **(08 Marks)**
b. Write a note on PCI bus. **(04 Marks)**
c. Explain Bluetooth and ZigBee wireless protocols. **(08 Marks)**

Module-3

5 a. Explain different hardware and software sources of interrupts. **(10 Marks)**
b. Explain various mechanisms of interrupt vector with suitable examples. **(10 Marks)**

OR

6 a. Explain context switching, interrupt latency and interrupt service deadline. **(10 Marks)**
b. With neat diagram, explain DMA transfer in an embedded system. **(10 Marks)**

Module-4

7 a. Define process and task, with diagram, explain task states. **(10 Marks)**
b. Distinguish between function, ISR and task. **(10 Marks)**

OR

8 a. What is Semaphore? Explain use of semaphore as resource key and for critical section. **(10 Marks)**
b. Describe shared data problem. Give its solution. **(10 Marks)**

Module-5

9 a. Explain the RTOS design goals. **(10 Marks)**
b. Discuss the three approaches used for interrupt routines in RTOS while handling interrupt calls. **(10 Marks)**

OR

10 a. Explain Round Robin scheduling and preemptive sche *Is of RTOS. **(10 Marks)**
b. Explain various software tools used in implementati t **led system. **(10 Marks)**

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