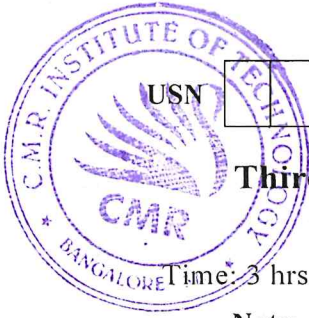


CBCS SCHEME



18SCS321

Third Semester M.Tech. Degree Examination, Dec.2019/Jan.2020 Embedded Computing 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 components of embedded system hardware with a neat diagram. (08 Marks)
b. Write short notes on examples of embedded system. (04 Marks)
c. Explain about embedded system design process. (08 Marks)

OR

- 2 a. Explain in brief about microprocessors and micro controllers. (08 Marks)
b. Illustrate the design process of an ACVM embedded system. (08 Marks)
c. Explain any four challenges in embedded system design. (04 Marks)

Module-2

- 3 a. Describe in detail about UART and HDLC protocol. (08 Marks)
b. Write short notes on parallel interfacing with touch screen and LCD controller with diagram. (08 Marks)
c. Discuss in brief about synchronous, ISO-synchronous and Asynchronous communications from serial devices. (04 Marks)

OR

- 4 a. Discuss in detail about the any 4 serial bus communication protocols with neat diagram. (10 Marks)
b. Write short notes on various wireless and mobile system protocols. (10 Marks)

Module-3

- 5 a. Explain programmed I/O Busy-wait approach without interrupt service mechanism. (10 Marks)
b. Demonstrate the steps involved in context switching interrupt latency and dead line. (10 Marks)

OR

- 6 a. Discuss the working of DMA transfer in an embedded system, with a neat diagram. (10 Marks)
b. Write short notes on device driver programming and writing physical device-driving ISR's in a system. (10 Marks)

Module-4

- 7 a. Distinguish between function, ISR and tasks. (10 Marks)
b. Briefly explain about shared data problem solutions. (10 Marks)

OR

- 8 a. What are counting semaphores how to use P and V semaphore function for bounded buffer problem solution. (10 Marks)
b. Define process and task with their states. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. What is the target system with the help of a block diagram, illustrate different components of the system. (10 Marks)
- b. Mention the various scheduling models and explain the cyclic and Round Robin with Time Slicing scheduling models. (10 Marks)

OR

- 10 a. Explain in detail about Earliest DeadLine First (EDF) and Rate Monotonic Schedulers (RMS). (10 Marks)
- b. What is RTOS? Explain the design principles when using in RTOS to design an embedded system. (10 Marks)
