

Department of Electronics Communication

**IV B.Tech II Semester
EMBEDDED SYSTEMS**

Question Bank

Branch : ECE

UNIT-1

- 1 a) Explain in detail about Embedded system design process with examples?
b) Explain the difference between Embedded System and general computing systems?
- 2 a) Describe the classification of Embedded systems
b) Write a short note on characteristics of Embedded Computing Applications
- 3 a) Explain the following terms:
i. Sensors ii. Actuators iii. Communication Interface b) Explain the History of Embedded System
- 4 a) Write a short notes non-quality attributes of Embedded systems
b) Write briefly about domain specific embedded systems?
- 5 a). Explain the Quality attributes of the Embedded systems
b) Describe with an Example about the application specific embedded system

UNIT-2

1. Explain the following
 - a) Watch dog timer
 - b) Real time clock
2. Explain basic design using RTOS hard real time scheduling
3. Explain i) Serial communication devices
 - ii) Parallel device ports
4. Discuss about the analog and digital components used in designing an embedded systems
- 5 a) Brief out the various wireless devices

- b) Explain the I/O types in the world of embedded systems

UNIT-3

- 1 a) Explain DMA transfer mechanism and how you interface to the processor ?
b) Explain about Embedded firmware design approaches.
- 2 a) Explain the concepts of C versus embedded C?
b) Discuss about the firmware development in an embedded system
- 3.a)Explain about the conversion process of assembly language into machine level language
b) Sort out the differences between compiler into crosscompiler
4. Explain the concepts of Interrupts and ISR
- 5 a) Mention the different firmware development languages
b) Explain the concept of DMA

UNIT-4

- 1.a) Explain the functions of a scheduler in an RTOS and how does the scheduler carryout those functions?
b)Explain message queues,mail boxes and pipes and events. Give examples?
2. a) Explain the implementation of creating and terminating process? b)Explain task, task state ,semaphore and shared data?
- 3.Explain the action plan for designing an RTOS based embedded system in its development Process
- 4 a) What is meant by hardware and software co-design. Explain hardware software Trade-offs.
b).Explain about the computational models in embedded system design?
- 5 a) Explain about the fundamental issues in hardware software Co design
b) With a help of examples explain how scheduling processes are implemented?

UNIT-5

- 1 a) Describe a ROM Emulator
b) List the Difference between ROM Emulator and In-Circuit-Emulator
 - 2 .Define the following terms related to embedded system design
i)Emulators ii) instruction set simulator
 3. a)How the target hardware debugging done in design of embedded system
b)Explain about the embedded software development process and tools ?
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4 a) Explain about boundary scan

b) Define hardware /Software Co-simulator ?

5 a) What is a key method for speeding up simulator ?

b) Explain about the different types of files generated on cross compilation.

UNIT-6

1a)List and describe the translation tools used in an Embedded system

b)Explain about Laboratory instruments for testing the embedded system

2. Write short notes on quality assurance and testing of the embedded system design?

3. With respect to embedded RTOS compare among the following :

- a) Mailbox
- b) Message queue
- c) Event Register
- d) Pipes.

4. Explain the important features of the following that are relevant to embedded system

- a) Compilers Linkers
- b) laboratory tools

5. Brief out the following:

- i) Interpreters
- ii) compilers
- iii) CAD tools