

**III B. Tech II Semester Supplementary Examinations, December -2023**  
**EMBEDDED SYSTEMS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) What is non-operational quality attributes? Explain the important non-operational quality attributes to be considered in any embedded system design [7M]
- b) Explain the different classifications of Embedded Systems. Give an example for each. [7M]

(OR)

2. a) What are the different types of memories used in Embedded System design? Explain the role of each. [7M]
- b) List the differences between embedded system and general computing system. [7M]

**UNIT-II**

3. a) Explain in detail about the analog and digital electronic components. [7M]
- b) Discuss in detail about wireless devices. [7M]

(OR)

4. a) Discuss about the types of I/O devices used in embedded hardware with an examples. [7M]
- b) Explain briefly about Real Time Clock. [7M]

**UNIT-III**

5. a) Explain the high level language based embedded firmware development. [7M]
- b) What are pseudo-ops? What is the use of it in assembly language programming? [7M]

(OR)

6. a) Explain the difference between super loop based and OS based embedded firmware design. [7M]
- b) Write short note on Direct memory Access (DMA) in detail. [7M]

**UNIT-IV**

7. a) List out different Fundamental Issues in Hardware Software Co- Design and explain. [7M]
- b) Write short notes on Task synchronization in detail. [7M]

(OR)

8. a) What is deadlock? List and explain different conditions favoring a deadlock situation. [7M]
- b) Define process? Draw the processor state transition diagram and explain it. [7M]

**UNIT-V**

9. a) Explain the concept of embedded system for a smart card in detail. [7M]
- b) Write short notes on Testing on host machine. [7M]

(OR)

10. a) List out the different Types of files generated on cross-compilation and explain. [7M]
- b) What is debugging tool? Explain it. [7M]