

**R18**

Code No: 156AV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, March - 2024

**EMBEDDED SYSTEM DESIGN**

(Common to ECE, ECM)

Time: 3 Hours

Max. Marks: 75

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) List out the applications of an embedded systems. [2]
- b) Explain the purpose of an embedded systems. [3]
- c) Write the differences between ROM and RAM. [2]
- d) Differentiate a sensor and an actuator. [3]
- e) What is meant by assembly language program? [2]
- f) What are the drawbacks of assembly language-based firmware development? [3]
- g) Define multiprocessing. [2]
- h) Draw the generic architecture diagram of an operating system. [3]
- i) What are the types of sockets? [2]
- j) What are the challenges in concurrent execution? [3]

**PART - B**

**(50 Marks)**

2. Discuss the important differences between a computer and an embedded system. [10]
- OR**
3. List out and discuss quality attributes of an embedded system in detail. [10]
4. Explain the onboard and peripheral communication interfaces with examples. [10]
- OR**
5. What are the embedded system requirements? Discuss the factors that are to be considered while selecting the memory devices for an embedded system. [10]
6. What is a reset circuit? Explain the need and operation with a neat circuit diagram. [10]
- OR**
7. Explain the super loop based embedded firmware design approach. [10]
8. Write short note on the following:
  - a) Memory management
  - b) Process management
  - c) Device management
  - d) File management.

[2+3+2+3]

**OR**

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9.a) Discuss the advantages and disadvantages of various operating systems.

b) Explain about multitasking with a suitable example.

[5+5]

10. Describe various methods to choose an operating systems.

[10]

**OR**

11. What is remote procedure call? List out the sequence of events in remote procedure call. Discuss the advantages and disadvantages of remote procedure call. [10]

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QA QA QA QA QA QA QA G