

Code No: 117CZ

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, January/February - 2023

EMBEDDED SYSTEM DESIGN

(Electronics and Communication Engineering)

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) What is small scale embedded system? [2]
- b) Compare general purpose computing systems and embedded systems. [3]
- c) Compare SRAM and DRAM. [2]
- d) Give the advantages of PLD. [3]
- e) What is the purpose of reset circuit in the embedded system? [2]
- f) Write the limitations of high level language based development. [3]
- g) What is the process life cycle? [2]
- h) List the basic functions of real-time kernel. [3]
- i) What is deadlock? [2]
- j) What are the merits and demerits of the priority ceiling? [3]

PART – B

(50 Marks)

2. Explain the classification of embedded systems based on different criteria in detail and give an example for each. [10]

OR

3. What is an embedded system? Explain the different applications of embedded systems. [10]

- 4.a) Discuss the selection of memory in embedded system design.
- b) Explain the memory shadowing. [5+5]

OR

5. Which are the components used as the core of an embedded system? Explain the merits, drawbacks, if any, and the applications/domains where they are commonly used. [10]

6. What is a watchdog timer? Explain its role in embedded system design. [10]

OR

7. Discuss the various Embedded Firmware Design Approaches in detail. [10]

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8. Explain different multitasking models in the operating system context. [10]

OR

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9. Explain how 'accurate time management' is achieved in real time kernel. [10]

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10. What is a device driver? Explain the architecture of device drivers. [10]

OR

11. Explain the message passing technique for IPC. What are the merits and demerits of message-based IPC? [10]

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