Code No: 127CZ **R15**

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]

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

OR

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

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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