Code No.: 404B3 **MR14**

# MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
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## IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **EMBEDED SYSTEM DESIGN**

Branch: **COMMON TO ECE & EEE**

**Time: 3 hours** **Max. Marks: 75**

### PART – A

**I. Answer ALL questions of the following** **5x1M=5 M**

1. Explain the different applications of embedded systems.
2. What are the real time requirements of an embedded systems?
3. What is watch dog timer?
4. What is Mailbox?
5. Define Interface.

**II. Answer ALL questions of the following** **10x2M=20 M**

1. What is the operational quality attribute?
2. Mention examples of embedded systems.
3. What is digital signal processing (DSP)?
4. What are the CISC Processors?
5. What is embedded firmware?
6. What is compiler?
7. What are the types of operating systems?
8. Explain Round robin Scheduling.
9. Explain the device drivers used in embedded systems.
10. Explain race condition in relation to the shared resource access.

### PART-B

**Answer ALL questions of the following** **5x10 M= 50M**

1. Explain the non operational quality attributes in detail.

OR

2. Define Embedded system ? justify Embedded system with an example.

3. Which are the components used as the core of an embedded systems? Explain the merits and drawbacks.

OR

4. Explain read and write operations in SRAM, with neat memory cell internals and timing diagram.

5. Explain the role of Brown out protection circuit in embedded system.

OR

6. Explain the following interfaces. (i) RS- 232 (ii) USB.

7. Explain the various factors to be considered for the selection of scheduling criteria.

OR

8. Explain the different thread binding models for user and kernel level threads.

9. Discuss the following a) Pipes b) Message Queues.

OR

10. a) Explain the architecture of Device Drivers.
    b) Define the metrics used for performance measurement of an embedded system.