

CMR ENGINEERING COLLEGE: : HYDERABAD**UGC AUTONOMOUS****III-B.TECH-II-Semester End Examinations (Regular) - June- 2025****EMBEDDED SYSTEM DESIGN****(ECE)****[Time: 3 Hours]****[Max. Marks: 60]****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A**(10 Marks)**

1. a) What is an embedded system? [1M]
- b) List any two characteristics of embedded systems. [1M]
- c) What is a sensor? [1M]
- d) Define the term "memory shadowing". [1M]
- e) What is the role of a reset circuit? [1M]
- f) Name any one embedded firmware design approach. [1M]
- g) Define multitasking in RTOS. [1M]
- h) What is task scheduling? [1M]
- i) What is message passing? [1M]
- j) Name any one task synchronization technique. [1M]

PART-B**(50 Marks)**

2. Explain the classification of embedded systems. [10M]
- OR**
3. Discuss the quality attributes of embedded systems with suitable examples. [10M]
4. Explain about RAM types used in embedded systems. [10M]
- OR**
5. Explain the architecture and use of PLDs and ASICs in embedded systems. [10M]
6. Explain the functions of real-time clock and watchdog timer. [10M]
- OR**
7. Describe the embedded firmware design approaches and languages commonly used. Give their merits and demerits. [10M]
8. Differentiate between multitasking and multiprocessing with examples. [10M]
- OR**
9. Explain how task scheduling is performed in RTOS-based systems. [10M]
10. Explain shared memory and message passing mechanisms. [10M]
- OR**
11. Explain device drivers and discuss criteria for selecting an RTOS. [10M]
