

Code No.: EC601PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III-B.TECH-II-Semester End Examinations (Supply) - January- 2024
EMBEDDED SYSTEM DESIGN
(ECE)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 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

(20 Marks)

1. a) Classify embedded systems based on generations. [2M]
- b) Illustrate the history of embedded systems. [2M]
- c) Differentiate between microprocessor and micro controller in the context of embedded systems. [2M]
- d) What is the role of DSP in an embedded system design? [2M]
- e) Explain the necessity of Brown out protection circuit in embedded systems. [2M]
- f) Discuss the purpose and functionality of watch dog timer. [2M]
- g) Write advantages of threads? [2M]
- h) Differentiate between RTOS and GPOS. [2M]
- i) Explain about any two task synchronization techniques. [2M]
- j) What is meant by PIPE? [2M]

PART-B

(50 Marks)

2. What are the operational quality attributes of embedded systems? [10M]
- OR**
3. Explain major application areas of Embedded System. [10M]
4. Explain the different on-board communication interfaces in brief. [10M]
- OR**
5. Explain the core of embedded systems with neat sketch. [10M]
6. Explain the process of high level language to machine language conversion. [10M]
- OR**
7. What is the super loop based embedded firmware design approach? [10M]
8. Compare Process, Task, and Thread. [10M]
- OR**
9. Assume that three process P1,P2 and P3 with execution times 10, 5 and 7 ms respectively entered the ready queue simultaneously and after 2ms, process P4 with execution time 6ms entered the ready queue. Find the wait time and turnaround time of each process and average wait and turnaround times on application of shortest job first (SJF) and First Come First Serve (FCFS) algorithms. [10M]
10. Explain different deadlock handling mechanisms. [10M]
- OR**
11. Explain the need of semaphore and types. [10M]
