

Code No: 5455AA

R17

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, January - 2018

EMBEDDED SYSTEM DESIGN

(Embedded Systems)

Time: 3hrs

Max.Marks:75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 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

5 × 5 Marks = 25

- 1.a) Discuss different applications of embedded systems. [5]
- b) What is PLD? Explain the role of it in embedded system design. [5]
- c) Describe the role of reset circuit in embedded system. [5]
- d) Explain the various factors to be considered for the selection of a scheduling criterion. [5]
- e) What is deadlock? What are the different conditions favouring deadlock? [5]

PART - B

5 × 10 Marks = 50

2. Explain different classifications of embedded systems. Give an example for each. [10]
- OR
3. What is non-operational quality attribute? Explain the important non-operational quality attributes to be considered in any embedded system design. [10]
4. Explain the components of a typical embedded system in detail. [10]
- OR
5. What is sensor? Explain its role in embedded system design. Illustrate with an example. [10]
6. Describe the role of watchdog timer in embedded system with an example. [10]
- OR
7. What is the difference between *super loop* based and *OS* based embedded firmware design? Which one is the better approach? Explain both of them. [10]
8. Explain the different multitasking models in the operating system context. [10]
- OR
9. Explain the round-robin process scheduling with interrupts. [10]
10. Explain the different functional and non-functional requirements that need to be evaluated in the selection of an RTOS. [10]
- OR
11. What is device driver? Explain its role in embedded OS based products. [10]