R15

Code No: 127CZ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2018

EMBEDDED SYSTEM DESIGN

(Common to ECE, ETM)

Time: 3 Hours **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

(25 Marks)

1.a) What is "Time-to-prototype"? [2]
b) What is the difference between a system and an embedded system? [3]
c) What is memory shadowing? What is its advantage? [2]
d) What are the uses of ASIC in designing an embedded system? [3]
e) What is 'Assembly Language" programming? [2]
f) Explain the need of a watchdog timer. [3]
g) Why is thread creation faster than process creation? [2]
h) Which operating system is suitable for embedded system design? Explain. [3]
i) What is priority inversion? [2]
j) Give the features of RTOS. [3]

PART-B

(50 Marks)

2. What is an embedded system? Explain the different applications of embedded systems. [10]

OR

3. Explain quality attribute in the embedded system development context? What are the different quality attributes to be considered in an embedded system design. [10]

4. What is the difference between big-endian and little-endian processors? Give an example of each? [10]

OR

5. Explain the different on-board communication interfaces in brief. [10]

6.a) Explain the advantages of 'Assembly language' based embedded firmware development.
b) Explain the advantages of 'High Level language' based embedded firmware development. [5+5]

OR

7.a) What is static function? What is the difference between static and global functions?

b) What is function pointer? How is it related to function? Explain the use of function pointers. [5+5]

8.a) Explain the various factors to be considered for the selection of scheduling criteria.

b) Explain all activities involved in context switching. [5+5]

OR

9.a) Explain how accurate time management is achieved in real time kernel.

b) Explain how multithreading can improve the performance of an application. [5+5]

10. What is Inter Process Communication (IPC)? Give an overview of different IPC mechanisms adopted by various operating systems. [10]

OR

11. Explain the different functional and non-functional requirement that needs to be evaluated in the selection of an RTOS. [10]

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