Code No: 5455AC

R17

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M. Tech I Semester Examinations, June/July - 2018

REAL TIME OPERATING SYSTEMS

(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) Differentiate between fork and vfork. [5]
b) Define message queue and explain its application. [5]
c) What is I/O subsystem? How it matters to the performance of Operating System? [5]
d) Explain the nature of spurious interrupts in RTOs. [5]
e) List out the applications of RTOs. [5]

PART - B

5 × 10 Marks = 50

2. How do you create, remove, open, close, read, write and IO control a file using Unix commands? Give the applications of above commands. [10]

OR

3. Describe the evolution of Linux. "Most of the large IT companies run their infrastructure entirely on the Linux OS" Justify this statement. [10]

4.a) Differentiate between Real Time Operating system and Non Real Time Operating system.
b) What are the task synchronization tools in RTOS? [5+5]

OR

5.a) What are the principles of Concurrency in RTOS? Explain the problems encountered in concurrency.
b) Explain Interprocess communication in RTOs. [5+5]

6.a) Draw the architecture of I/O Subsystem and explain.
b) Explain typical uses of Event registers. [5+5]

OR

7.a) What is device driver? Is it software or Hard ware? What is the role of device drivers in RTOS?
b) Explain the communication between two threads using pipes. [5+5]

8.a) Differentiate between Exception and Interrupt.

b) Explain the use of Real time Clocks. What is the reason that the computer is losing its system time or date settings? [5+5]

OR

9.a) List out different types of interrupts? Explain how interrupt is handled in linux?

b) What are the operations of timers? Explain applications of Exception handling. [5+5]

10. Explain in details about the Operating system used for sensor networks. [10]

OR

11. Describe any one case study of embedded Linux. [10]

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