Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E.- SEMESTER–I • EXAMINATION – WINTER 2013

Subject Code: 2715302 Date: 26-12-2013

Subject Name: OS Programming

Time: 10.30 To 13.00 Total Marks: 70

Instructions:

1. Q. no. 1 is compulsory and answers any FOUR questions from Q. No 2 to 6.
2. Make suitable assumptions wherever necessary.
3. Figures to the right hand indicate the marks.

Q. No. 1

a. Explain various process states possible in unix/linux environment. [4 Marks]
b. Explain process life cycle in detail with suitable diagram. [3 Marks]
c. Define context switching with example and various reasons of context switching. [4 Marks]
d. What do you mean by thrashing? How to control thrashing? [3 Marks]

Q. No. 2

a. Explain various CPU scheduling algorithms with examples. [7 Marks]
b. Explain how thread creation is different from process creation. [3 Marks]
c. List out and explain any four pthread library API. [4 Marks]

Q. No. 3

a. Give an example for race conditions. [7 Marks]
b. What is a semaphore? Explain semaphore operation in detail with an example. How mutex operations are different from semaphore operations? [7 Marks]

Q. No. 4

a. Write a short notes on following
   - Interrupt handling [3 Marks]
   - System calls [4 Marks]
b. Compare and contrast shared memory, message queues, pipes used for process communication. [7 Marks]

Q. No. 5

a. Explain hard links and soft links with suitable examples. Explain the syntax of creating hard, soft links with in command. [7 Marks]
b. List out typical attributes of an inode. Explain in details unnamed, named pipes with example. [7 Marks]

Q. No. 6

a. Explain how excel system call is used to overwrite child workspace. [7 Marks]
b. What is a page fault? Explain page fault exception handler in detail? [7 Marks]

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