

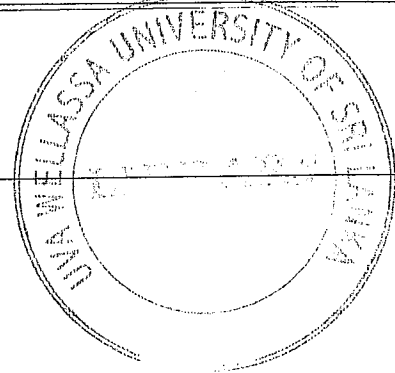
Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
200 level 2nd Semester Examination – Dec.-2017/Jan.-2018
CST253-2 Operating Systems Concepts and Designs



Part B

Number of questions: Three (03) Essay

Mark allocation: 75



1. Briefly explain the following terms in operating systems.

- a. Process States
- b. Race Condition
- c. Thrashing
- d. Mutual Exclusion
- e. Context Switching

(25 mark)

2. Consider the following set of processes with the length of CPU burst time given in milliseconds.

Process	Arrival Time	Burst Time
P1	0	6
P2	1	4
P3	3	5
P4	5	3

- a. Draw the Gantt chart to illustrate the execution of these processes using Shortest Job First (SJF) preemptive and SJF non-preemptive algorithms separately. (6 mark)
- b. Calculate the average turnaround time, average waiting time and average response time for both algorithms separately. (6 mark)
- c. Which algorithm is most effective for the above scenario? Justify your answer. (5 mark)
- d. Differentiate preemptive and non-preemptive CPU scheduling. (8 mark)

3.

- a. Briefly explain deadlock in operating systems. (4 mark)
- b. Explain one (01) classic problem of synchronization in operating systems. (5 mark)
- c. Discuss the four (04) necessary conditions for deadlock. (8 mark)
- d. Compare and contrast paging and segmentation memory management schemes. (8 mark)