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Daffodil International University

Department of Software Engineering

Faculty of Science & Information Technology

Midterm Examination, Spring 2024

Course Code: SE 232; Course Title: Operating System & System Programming

Sections & Teachers: 38(A,B), 39(A,B,C,D); SSD, BH, IS

Time: 1 Hour 30 Minutes **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1	a)	**Define** the characteristic and hierarchical structure of the traditional Unix system with the diagram.	Marks 5	CO1, PO2, L1
	b)	**State** the factors which contribute to a process transitioning from the ready state to the running state in an operating system.	Marks 5	CO1, PO2, L1
2		Consider the following set of processes, with the length of the CPU burst is given in milliseconds.		

Process ID	Arrival Time	Burst Time
P1	5	10 |7|4
P2	4	6|3|0
P3	3	7|4|1|0
P4	1	9|6|3|0
P5	2	2
P6	6	3|0

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	a)	**Apply** the Round Robin CPU Scheduling algorithm (**quantum=3**) considering the scenario and calculate the average waiting time and average turnaround time with the gantt chart. 13.5 24.67	Marks 5	CO2, PO1, L3
	c)	**Apply** the non-preemptive version of scheduling algorithm (which focuses on the burst time) for the above scenario to find out average waiting time and average turnaround time with the gantt chart. 11 17.17 Compare the average value and identify the better algorithm for above processes.	Marks 5	CO2, PO1, L3
	c)	**Explain** the benefits of using multi thread and classify the best multithreading model used in the operating system.	Marks 5	CO2, PO1, L3