BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
I SEMESTER 2008-2009

Test 1 – Closed Book

CS C372/IS C362 - Operating System
Weightage: 20% (60 marks)
Date: 01/09/2008
Time: 50 Minutes

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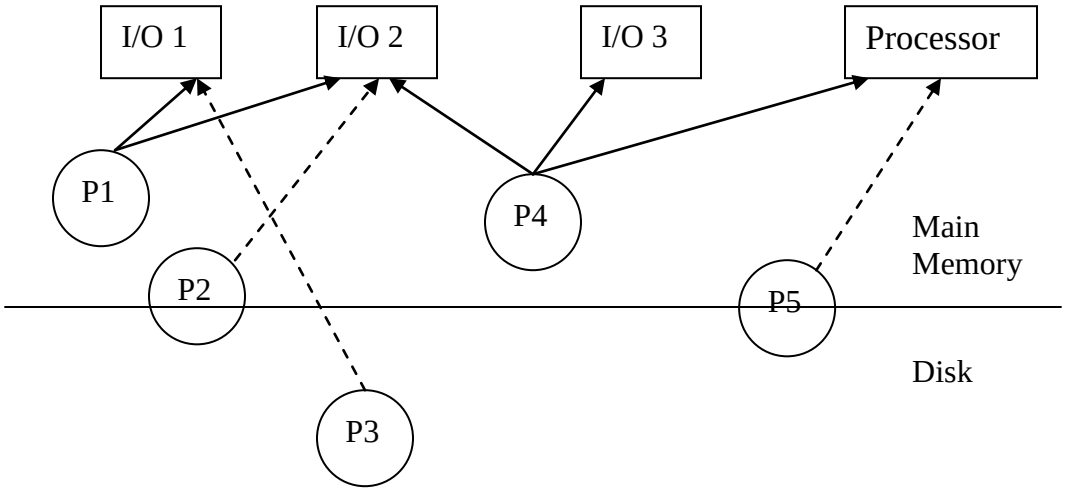
1. What is the difficulty in implementing SJF, SRT, & HRRN? How do operating systems implement these algorithms?

[6]

2. What is the motivation behind introducing a suspended state in the 5-state process model? Further explain why there is need to split the suspended state into ready/suspend and blocked/suspend states?

[6]

3. Consider the scenario shown below:



The solid arrows indicate a resource allocated and dashed arrows indicate resource seeking.

(a) Identify the states of the five processes.
(b) Identify the processes which might use demand paging.

[9]

4. Apply the multi-level feedback queue scheduling algorithm to schedule the following processes:

Process	Arrival Time In Ready Queue	CPU bursts
P1	0	5
P2	2	4
P3	4	8
P4	5	9
P5	6	3

5. Consider the following processes, with the length of the CPU & I/O bursts (in milliseconds):

Process	Arrival Time In Ready Queue	CPU-I/O-CPU bursts
P1	**0**	**2-2-3**
P2	**1**	**4-0-0**
P3	**2**	**1-2-2**
P4	**3**	**3-0-0**
P5	**6**	**5-0-0**

On a time line, schematically show how the processes execute under the following scheduling algorithms:
(a) FCFS
(b) Round-robin (q=3)
(c) Virtual Round Robin (q=3)

What is the average waiting time and average normalized turnaround time for each scheduling algorithm? Which scheduling algorithm gives the best service quality?

[6+6+6+6]