Course covering Outcomes	V				

Question	1	2	3	4	5
Covered Outcome	1,5	1,5	1,5	1,5	1,5
Allocated mark	6	6	6	6	6
Earned mark					

Total		
1	5	Exam
15	15	30

6

Question 1, 1x6=6 Marks

Choose correct (best match) one of the four given answers:

1. **An Operating system failure can generate:**
   a. A crash dump file. b. A program counter
   c. A PCB d. A core dump file.

2. **The OS keeps track of which users use how much and what kinds of computer resources, this service is called:**
   a. Error detection b. File-system manipulation
   c. Accounting d. Resource allocation

3. **Which of the following system calls is related to information maintenance**
   a. end, abort b. get device attributes
   c. create file, delete file d. get time or date

4. **The mechanism for processes to communicate and to synchronize their actions is called:**
   a. Serialization b. Segmentation
   c. Paging d. Interprocess Communication

5. **Which of the following is not a property of indirect communication**
   a. Link established only if processes share a common mailbox.
   b. A link may be associated with many processes.
   c. Each pair of processes shares one communication link.
   d. Link may be unidirectional or bi-directional.

6. **Which of the following is not an advantage of multiprocessors systems:**
   a. Increasing throughput b. Reducing reliability
   c. Economy of scale d. Fault tolerance

5

Question 2, 1x6=6 Marks

Mark the below Statements True or False:

1. One of the goals of scheduling techniques is to maximize turnaround time. [F]
2. CPU utilization means keeping the CPU as busy as possible. [T]
3. Peterson's Solution is a solution to the critical section problem. [T]
4. In direct communication, a link can exist between more that two processes. [F]
5. In the FCFS scheduling technique, processes can be preempted. [F]
6. A Program is a passive entity and a process is an active entity. [F]

Kingdom of Saudi Arabia
Ministry of Education
College of Computer
Department of Computer Science

بسم الله الرحمن الرحيم

المملكة العربية السعودية
وزارة التعليم
كلية الحاسب
قسم علوم الحاسب

Qassim University جامعة القصيم

Course: CS222 "Operating Systems"
Semester 441- 2022/ 2023

Mark_____/30

Duration: 1 hour
Day 10/05/2023

Question 3, 1x6=6 Marks

Duddging

5

Fill in the blank with the exact Word or Phrase:

1. ...J.O.P.....
2. ...Security.....queue contains a set of all processes in the system.
3. Peterson's Solution is a solution to the ...Critical Section..... defense of the system against internal and external attacks.
4. ...S.J.F.....scheduling technique gives minimum average waiting time for a given set of processes. problem.
5. .....Java..... process can affect or be affected by the execution of another process.
6. ...Error detection.....is finding and fixing errors, or bugs.

cooprating

Question 4, (3+3 respectively) =6 Marks

Duddging

6

Short answer type questions:

1. **List four different possible states for a process?**
   ...New
   ...Ready
   ...Run
   ...Wait

2. **In priority scheduling techniques low priority processes may never execute, what is this problem called and what is the solution to prevent such a problem?**
   Starvation, We can solve this problem by aging.

Question 5, =6 Marks

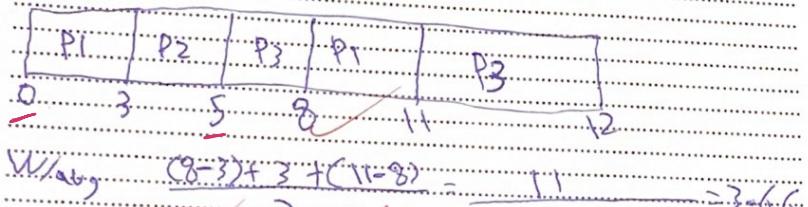
Process	Duration (Burst time)
P1	6 → 3
P2	2 ✓
P3	4 → 1

$P_1 = 0 + (8-3)$ $P_3 = 5 + (11-8)$

$P_2 = 3$

5

Assume that all processes arrived at time 0, use the RR scheduling technique with q = 3, draw the Gantt chart for the processes, and calculate the average waiting time.



Waiting $\frac{(8-3)+3+(11-8)}{3} = \frac{11}{3} = 3.66$

Good luck
Dr. Sualaiman Al amro