3. [illegible]
system call ?

CSE 3213 - OS Quiz # 1 Sect: B Time :— 15 m

1. Discuss the Monolithic OS architecture. (5)
2. What is the difference between a program & a process? (2)
3. With a diagram, explain the response of an OS to a system call ? (3)

CSE 3213 - OS Quiz # 1 Sect : B Time — 15 m.

1. An OS serves as an Extended Machine & as a Resource Manager - Explain. (5)
2. What is an ExoKernel ? (3)
3. 'All the process share a Common text, data and Stack segment! What is your comment on the statement ? (2)

CSE 3213 -- OS Quiz #1 Sect : A Time — 15m

1. What is the difference between a Monolithic & Microkernel OS Architecture? (5)
2. Why can't a user application run in Kernel mode? (2)
3. Operating system is an Extended Machine - comment on it — (3)

CSE 3213 — OS Quiz #1 Sect : A Time: — 15m

1. Discuss the type-1 and type-2 hypervisor of a virtual Machine operating system. — (5)
2. What are the disadvantages of a Monolithic OS structure? — (2)
3. With a diagram, show how the OS respond to a system call? — (3)

CSE 3213 — OS Quiz #1 Section: C Time — 15m

1. Differentiate between type 1 and type 2 hypervisor in a virtual Machine os — (3)

2. How does the fork() system call work? Show with an Example. — (6)

3. Why is an os called a Kernel? — (1)

CSE 3213 – 05 | Quiz #1 | Section: C | Time: — 15m

1. What is the difference between User mode and Kernel mode? — (3)

2. Explain with necessary figures the transition from user mode to kernel mode during a system call — (3)

3. Discuss the following in Brief — 2 x 2 = 4

   A. Process
   B. Daemon Program.

CSE3213/OS

F-16

Q#2*

1. What are the disadvantages that might occur if time quantum is too large or too small in a 'Round Robin' scheme? (2)

2. How does Race condition arise? Explain with an Example (3)

3. Find the Average turnaround time for the following problem. Use Rouddd Robin Scheme with time quantum Q = 5

Process	Arrival time	Cpu time
P_1	23	3
P_2	22	4
P_3	6	16
P_4	0	10
P_5	9	15

CSE 3213 Fall 16

Q#2

1. Present a solution for the producer-Consumer Problem with semaphore. Explain the situation (in your code) when there are no items in the buffer and two consumer attempts to execute their code (5)

2. Find the Average turn around time for the following problem using a multilevel Queue Scheduling scheme with time quantum = 4, 8 for the queue Q_1 and Q_2 and FCFS for the Queue Q_3. (5)

Process	Arrival time	Cpu Burst time
P_1	26	22
P_2	30	8
P_3	4	13
P_4	13	25
P_5	0	25

CSE3213 *Q#2 Fall 16

1. Findout the average Turnaround time for the following Problem using 'Shortest Remaining Time Next' scheme. (5)

Process	Arrival time	Cpu time
P_1	9	2
P_2	3	1
P_3	0	4
P_4	2	2
P_5	7	6
P_6	8	3

2. How can an OS implement priority for processes in 'Lottery Scheduling' Scheme. (2)

3. What is the main problem of the 'Strict Alternation' approach for handling Race conditions (3)

* CSE 3213 Q#2 Fall 16

1. How does an OS determine Cpu burst time for a Process in batch process systems ? (3)

2. What is the disadvantage of 'Disabling Interrupts' Approach to handle Race condition ? (2)

3. Findout the average turnaround time for the following Problem using Round Robin scheme with time quantum Q = 4 . (5)

Process	Arrival time	Cpu burst time
P_1	7	10
P_2	5	6
P_3	0	8
P_4	14	4
P_5	17	8

CSE 3213 Q#2 Fall 2016

1. What is meant by Race condition ? Explain with an Example – (3)

2. What are the contents of a process control block ? (2)

3. Find out the average turnaround time for the following problem using Shortest Remaining time Next scheme (5)

Process	Arrival time	Cpu Burst time
P_1	3	7
P_2	0	10
P_3	8	2
P_4	11	1
P_5	13	5
P_6	13	2

CSE3213 Q1 Fall 2016

1. Find out the Average Turnaround Time for the following Problem. Use a Multilevel Queue scheduling scheme with time quantum = 8, 16 for the Queue Q_1, Q_2 and FCFS for the Queue Q_3. (5)

Process	Arrival time	cpu Burst time
P_1	0	28
P_2	4	12
P_3	13	29
P_4	26	22
P_5	30	9

2. What are the different states a process can be in ? (2)

3. How does a Semaphore variable operate ? (3)

Q#3 A B

1. Given that, there are three Memory Page frames, allocate the following page Requests of a process and count the average page faults. Use the 'least Recently Used Algorithm' (5)

Page Requests:

0, 2, 3, 4, 7, 2, 0, 5, 3, 0, 2, 9, 1, 0, 3.
10, 3, 4, 7, 3, 4, 7, 2, 3, 7, 10, 3.

2. Discuss the 'Enhanced Second chance page Replacement Algorithm'. (5)

Q#3

1. Discuss the 'best-fit' Memory allocation technique with an Example & explain the External Memory fragmentation. (5)

2. Assuming that there are three Memory Page Frames, allocate the following page Requests of a process P and count the Average page faults. Use the 'Optimum page Replacement' Algorithm.

Page Requests:

4, 2, 3, 4, 2, 0, 1, 5, 2, 10, 9, 1, 8

2, 11, 4, 3, 2, 10, 4, 3, 4, 6, 5, 3, 1

(A)(B)(C)

Q#3

(5)

1. Given that, there are three Memory page frames, allocate the following page requests of a process P and count the Average page faults. Use the 'Least Recently used' Algorithm.

Page Requests: 7, 0, 2, 4, 0, 7, 1, 2, 9, 10, 0, 1, 3, 4, 3, 6, 0, 7, 2, 5

(5)

2. Using any suitable example, show the Belady's anomaly in page Replacement techniques.

BCA

Q#3

(5)

1. Given the following page requests by a process P_1, allocate them in the Memory page frames.

Total Memory page Frame: 3

Page Requests: 1, 0, 2, 9, 0, 6, 0, 7, 1, 2, 1, 10 3, 0, 1, 9, 8, 11, 12, 0, 1, 2, 3, 11, 12, 1, 3, 4

Calculate Average page faults using the 'Optimum page Replacement' Algorithm.

2. Explain Multi-Level paging with any Suitable example (5)

Q#4

14.01.04.023

1. Discuss the differences between C-SCAN and C-Look algorithm for disk scheduling with necessary Example. (5)

2. Given the following scenerio, Explain if the following request can be served or not (5)

Resources A B C

<45 30 40>

Process	Allocation			MAX		
	A	B	C	A	B	C
P_1	5	8	6	6	12	12
P_2	4	2	3	6	5	9
P_0	1	0	0	3	3	13
P_4	2	0	8	14	3	10
P_3	10	5	0	10	6	0

Process P_0 requests <1, 1, 1>

14.07.04.039

Q#4

1. Discuss the difference between SCAN and LOOK disk scheduling Algorithm with an example. (5)

2. Given the following scenario, Explain if the following request can be served or not. (5)

Resources A B C

<20 18 18>

Process	Allocation			MAX		
	A	B	C	A	B	C
P_0	0	4	2	8	5	7
P_1	5	2	8	6	4	8
P_2	5	4	0	5	7	1
P_3	4	1	3	7	1	7
P_4	0	1	1	0	5	4

Process P_0 requests $< 2, 0, 0 >$

(e) Q#4

1. Compare the SCAN and SSTF algorithm for the following data — (5)

Cylinder Requests : 9, 21, 29, 60, 50, 140, 98, 302, 120, 210, 209, 55, 14, 19, 70

Total Cylinder : 350

Head position: At 100 th position

Head Direction: Moving Downwards

2. How can you detect deadlock in a system using Resource allocation graph? show with an example. (5)

(C) (2)

Q#4

A. What is a deadlock ? How can a deadlock occur in a system ? Explain with possible reasons (5)

B. Compare the following algorithms in terms of total Cylinder movement for the following data. (5)

Algorithm i) C-SCAN ii) FCFS

Cylinder Requests : 8, 12, 28, 40, 98, 129, 190, 111, 250, 275, 21, 14

Total cylinders : 300

Head position : At 39 th cylinder

Head Direction: Moving upwards

C-SCAN servie direction : Upwards.

(B)

Q#4

(A). How can you detect deadlock from a Resource allocation graph? Show with an example (5)

(B) Find the total cylinder movement for the following requests to the operating system. Use the SCAN and SSTF algorithm (5)

Cylinder Request : 10, 13, 39, 47, 63, 52, 8, 100, 220, 128, 110, 96

Head position : At 50th cylinder

Head direction : Moving Downwards

Total cylinders : 300

(B)

Q#4

1. Compare the C-Look and C-SCAN Algorithm (5)
for the following data:

Cylinder Requests : 13, 9, 39, 50, 52, 98, 11, 9
127, 61, 99, 210, 115

Head position: At 40 th cylinder

Head direction: Moving upwards

Total cylinders: 250

The system service Requests only moving downwards.

2. Discuss the four conditions that must hold for a dead lock to occur in the system (5)