Instructions:
1. All Questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data wherever necessary.
4. Use of pocket size non-programmable calculators, mini-drafter, block patterns and mathematical and steam tables is permitted.
5. Illustrate your answers with neat sketches, if necessary.
6. Course outcomes of question bits are mentioned prior to question bit.

Q.No.1		Solve any FIVE of the following	(15)

CO1 a. List different types of operating systems. State two advantages of multiprocessor operating system.

CO2 b. Differentiate between short term and long term scheduler.

CO3 c. State and explain criteria used for CPU scheduling.

CO4 d. Define swapping & state when it is used?

CO5 e. List any six attributes of file.

CO5 f. Explain indexed allocation method.

CO6 g. What is inode in UNIX

B   Solve any ONE of the following   (05)

CO3 a. Explain FIFO scheduling algorithm with example. List its advantages and disadvantages.

CO4 b. Explain LRU page replacement algorithm by taking suitable example.

Q.No.2   Solve any THREE of the following   (12) −4

CO1 a. Explain real time operating system with the help of example.

CO3 b. Describe the terms.
i) Preemptive Scheduling   ii) Non preemptive Scheduling

CO4 c. Differentiate between paging and segmentation.

CO5 d. Describe single and two level directory structures.

Q.No.3   Solve any THREE of the following   (12)

CO2 a. Define thread. State any three benefits of thread.

CO3 b. Solve the following problem using shortest Job first (SJF)
Calculate Average Waiting time

Process	Burst Time
P1	10
P2	3
P3	7
P4	5

Course Title: Operating System
Academic Year :2021-22 (Even Term)
Maximum Marks: 20,

Course Code: 6S404
Semester : IV
Duration: 01 Hours

Instructions:
1. All Questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks and CO means Course Outcome.
4. Assume suitable additional data if necessary.
5. Communication instruments such as pager, mobile etc. are not allowed in the exam hall.

Q1. Answer any Four of the following   12

Course Outcome CO 1/2	Bit	Item Description
CO 1	a	List/write types of operating system/mainframe system
CO 1	b	Define real time operating system
CO 2	c	List types of system calls?
CO 2	d	Draw layered structure (Unix/Linux) diagram.
CO 1	e	Write any 4 features of Microsoft Win 7 operating system.
CO 2	f	Draw monolithic operating system diagram

Q2 Answer any Two of the following   08

Course Outcome CO 1/2	Bit	Item Description
CO 1	a	State and describe services provided by an operating system.
CO 2	b	Write use of following system calls. 1) fork( ) 2) exec( ) 3) abort( ) 4) end( ) functions.
CO 2	c	Describe the purpose of system calls? State two system calls with its functions?

Q1. Answer any Four of the following 12

Course Outcome CO	Bit	Item Description
CO 3	a	List the types of scheduling algorithm.
CO 3	b	List any four necessary conditions for dead lock
CO 3	c	Define the term 1) Response Time 2) Waiting Time 3) Turnaround Time?
CO 6	d	Compare Unix and Linux.
CO 6	e	Explain Bootstrap in Unix.
CO 4	f	Define the term 1) Page fault 2) Demand paging 3) Swapping

Q2 Answer any Two of the following 08

Course Outcome CO	Bit	Item Description
CO 6	a	Explain Booting in Linux.
CO 4	b	Explain page Contiguous Memory allocation
CO 3	c	The jobs are scheduled for execution as follows >> solve the problem using Non preemptive priority find average waiting time using Gantt chart.

Process	Burst time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

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Q1. Answer any Four of the following 12

Course Outcome CO	Bit	Item Description
CO 4	a	Explain index allocation method.
CO 4	b	Compare paging and segmentation
CO 6	c	List page replacement algorithm and explain any one?
CO 6	d	Compare Unix and Linux.
CO 6	e	Explain structure of Unix operating system.
CO 4	f	Define the term 1) Page fault 2) Demand paging 3) Swapping

Q2 Answer any Two of the following 08

Course Outcome CO	Bit	Item Description
CO 6	a	Explain Booting in Unix.
CO 4	b	Explain Contiguous Memory allocation
CO 6	c	What is partitioning explain with diagram

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CO4   c.   Describe concept of virtual memory with suitable example.

CO5   d.   Compare UNIX and LINUX operating system.

Q.No.4   **Solve any TWO of the following**   (12)

CO1   a.   Explain following operating system structures.

    i) Monolithic   ii) Microkernal

CO2   b.   Consider the following set of processes with arrival time as below.

Process	Priority	Arrival Time	CPU Burst (in ms)
P1	2	0	5
P2	3	1	6
P3	4	2	7
P4	1	3	3

    Find out average waiting using.   1) Non Preemptive SJF

    2) Preemptive SJF

CO4   c.   Explain FIFO page replacement algorithm for reference string 7012030423103.

    (Consider three frames are available) List its drawback.

Q.No.5   **Solve any TWO of the following**   (12)

CO2   a.   Enlist process states. draw & explain process control block with suitable diagram.

CO5   b.   List different file allocation methods. Explain any one with example.

CO5   c.   Draw and explain structure of regular file in Unix operating system.

Q.No.6   **Solve any TWO of the following**   (12)

CO2   a.   Explain concept of interprocess communication considering.

    i) Shared memory   ii) Message Passing

CO5   b.   Describe contiquous allocation method for file. State any two merits and

    demerits.

CO6   c.   Explain process creation in Linux operating system.

Discribe booting linux os.

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