KADI SARVA VISHWAVIDYALAYA
B.E SEMESTER IV EXAMINATION (Oct/Nov 2023)

SUBJECT CODE: CT 404-N   SUBJECT NAME: **Operating Systems**
DATE: 02/11/2023   TIME:3 hours   TOTAL MARKS: 70

Instructions:
1. Answer each section in separate Answer Sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempted along with its respective question number.
4. Use the last page of main supplementary for rough work.

SECTION - 1

Q-1.	a)	Define operating system and list the basic services provided by operating system.	5
	b)	Explain Types of Operating Systems.	5
	c)	What are the types of System calls?	5

OR

	c)	Explain Concept of Virtual Machine.	5
Q-2.	a)	Explain Process Control Block.	5
	b)	What is a process? Explain state of Process.	5

OR

	a)	What is Dining Philosophers problem?	5
	b)	Explain: Pre-emptive scheduling and Non pre-emptive scheduling.	5
Q-3.	a)	List the main difference and similarities between threads and process.	5
	b)	Explain threads in detail.	5

OR

	a)	What are various criteria for a good process scheduling algorithm? Explain any two preemptive scheduling algorithms in brief.	5
	b)	What is semaphore? Discuss product-consumer problem with semaphore.	5

SECTION – 2

Q-4.	a)	What are the conditions for deadlock? Explain deadlock detection and recovery in detail.	5
	b)	Explain readers & writers problem?	5
	c)	Explain logical and Physical address map.	5

OR

	c)	Write short notes on: a) Critical section b) Race condition.	5
Q-5.	a)	What are the memory management requirements?	5
	b)	Explain memory management with bit maps in detail.	5

OR

Q-5.	a)	What are the differences of internal and external memory Fragmentation?	5
	b)	Discuss in details devices drivers.	5
Q-6.	a)	Explain Operating System Design Principles Of Security.	5
	b)	Explain Role & Function Of Kernel.	5

OR

Q-6.	a)	Explain deadlock avoidance using banker's algorithm in details.	5
	b)	Explain Directory Structure of Operating System.	5

******BEST OF LUCK******

KADI SARVA VISHWAVIDYALAYA
B.E SEMESTER IV EXAMINATION (May/2023)

SUBJECT CODE: CT 404-N   SUBJECT NAME: **Operating Systems**
DATE: 15/05/2023   TIME:3 hours   TOTAL MARKS: 70

Instructions:
1. Answer each section in separate Answer Sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempted along with its respective question number.
4. Use the last page of main supplementary for rough work.

SECTION - 1

Q-1.   a)   What is Operating System? Explain Batch Operating System with advantages and disadvantages.   5

      b)   What is process state? Explain the state transition diagram.   5

      c)   What is a process? Explain about various fields of Process Control Block.   5

OR

      c)   What is a Critical Section problem? Give the conditions that a solution to the critical section problem must satisfy.   5

Q-2.   a)   What is Readers-Writers Problem?   5

      b)   Consider the following set of processes, with the arrival times and the CPU-burst times and find out average waiting time and turnaround time by using FCFS Scheduling Algorithm in a Non Preemptive Approach.   5

Process	Arrival Time	Burst Time
P1	0	9
P2	1	3
P3	1	2
P4	1	4
P5	2	3
P6	3	2

OR

      a)   What is Dining Philosophers problem?   5

      b)   What is a deadlock? List the conditions that lead to deadlock.   5

Q-3.   a)   Differentiate Global and local allocation policies for paging.   5

      b)   List the different file implementation methods and explain them in detail.   5

OR

a) What is contiguous memory allocation in operating system? 5

b) Define a Thread? Give the benefits of multithreading. What resources are used when a thread is created? 5

SECTION – 2

Q-4. a) Explain Bankers' algorithm to avoid deadlock. 5

b) Consider the reference string 6, 1, 1, 2, 0, 3, 4, 6, 0, 2, 1, 2, 1, 2, 0, 3, 2, 1, 2, 0 for a memory with three frames and calculate number of page faults by using Least Recently Used (LRU) Page replacement algorithms. 5

c) Explain logical and Physical address map. 5

OR

c) Consider the following disk request sequence for a disk with 100 tracks. 98, 137, 122, 183, 14, 133, 65, 78.Head pointer starting at 54 and moving in left direction. Find the number of head movements in cylinders using SCAN scheduling. 5

Q-5. a) Explain Difference between Paging and Segmentation. 5

b) What is a hashed page table in OS? 5

OR

Q-5. a) Write short note: RAID levels. 5

b) What is a kernel? What is the purpose of the kernel? 5

Q-6. a) Explain the following UNIX commands
(i)grep (ii) cut (iii) chmod (iv) finger (v) mv 5

b) Explain following terms:
(i) Demand Paging (ii) Swapping 5

OR

Q-6. a) Explain the following allocation algorithms: 1) First-fit 2) Best-fit 5

b) Explain the goals of Operating System Security. 5

****** BEST OF LUCK******