L.J Institute of Engineering and Technology, Ahmedabad.
OS Practice book (SEM-VII-2025-26)

Note : This Practic book is only for reference purpose. LJU Test question paper may not be completely set from this practice book.

Sr No	Unit Number	Question_Text	MCQ Answer	Marks	Option A	Option B	Option C	Option D
UNIT - 1 - Introduction								
TOPIC NAME:- Concepts of OS and OS Types								
1	1	What is an operating system?	D	1	interface between the hardware and application programs	collection of programs that manages hardware resources	system service provider to the application programs	all of the mentioned
2	1	The operating system is the interface between _____and _____.	B	1	User & User	Hardware & User	Hardware &device	None of the mentioned
3	1	Basic functions of operating system is/are	C	1	Providing interface	resource managing	Both A and B	None of the mentioned
4	1	Which one is not Operating System?	D	1	DOS	LINUX	Windows	ORACLE
5	1	What is the key function of OS?	D	1	User Conveniences	Ability to evolve	Efficient Use	All of the Above
6	1	Which among services is not provided by operating system	B	1	Graphical User Interface	Error Solution	Input-Output Operation	Program Execution
7	1	_____ shares characteristics with both hardware and software	A	1	Operating system	Software	Data	None
8	1	Microsoft Windows is _____	B	1	Graphics program	Operating system	Word Processing	Database program
9	1	Which one of the following is not true?	B	1	kernel remains in the memory during the entire computer session	kernel is made of various modules which can not be loaded in running operating system	kernel is the first part of the operating system to load into memory during booting	kernel is the program that constitutes the central core of the operating system
10	1	In _____ OS, the response time is very critical	D	1	Multitasking	Batch	Online	Real-time
11	1	Real time systems are _____	B	1	Primarily used on mainframe computers	Used for monitoring events as they occur	Used for program development	Used for real time interactive users
12	1	Which one of the following errors will be handle by the operating system?	D	1	lack of paper in printer	connection failure in the network	power failure	all of the mentioned
13	1	Explain different service provided by operating system		3				
14	1	What is Operating System? Give functions of Operating System.		5				
15	1	What is an operating system? List the types of operating system and explain in brief		3				
16	1	State different types of operating system. Explain any one of them.		3				
17	1	Explain the following in brief.: Distributed Operating Systems		3				
18	1	Explain in brief a Batch Operating Systems		3				
19	1	Write a Short note on a Multi Programmed Operating Systems		3				
20	1	Explain in brief a time-Sharing Operating Systems		3				
TOPIC NAME:- OS Structure								
21	1	In layered Approach Os structure the bottom layer is _____	A	1	Hardware	software	User interface	Application Program
22	1	In layered Approach Os structure the highest layer is _____	C	1	Hardware	software	User interface	Application Program
23	1	In which operatting system structure, any module can call any other module without any reservation.	C	1	Layered	Microkernal	Monolithic	Virtual Machine
24	1	In which OS structure, operating system by removing all nonessential components from the kernel and implement them as system and user level programs.	B	1	Layered	Microkernal	Monolithic	Virtual Machine
25	1	An operating system can create the illusion that a process has its own processor with its own memory is known as_____	D	1	Layered	Microkernal	Monolithic	Virtual Machine
26	1	A virtual machine usually known as _____ is created within another computing environment reffered as a _____.	A	1	gust, host	host, gust	gust,gust	host, host
27	1	In which mode virtual machine itself can execute.	A	1	User Mode	Client Mode	Monitor Mode	Mouse Mode
28	1	In which mode virtual machine software can run, since it is the operating system.	C	1	User Mode	Client Mode	Monitor Mode	Mouse Mode
29	1	Explain structure of Operating System.		3				
30	1	Explain monolithic operating system structure.		3				
31	1	Explain layered operating system structure.		3				
32	1	Explain microkernel system structure.		3				
33	1	Explain Client Server system structure.		3				
UNIT - 2- Process Management								

TOPIC NAME:-Process Concept, Process States, Process Control Block, Context Switching								
34	2	A process running in background is called _____.	B	1	Foreground process	Background Process	Primary Process	Main Process
35	2	Which of the following is NOT a state of a process?	D	1	New	Running	Terminated	Free
36	2	What is the primary function of context switching?	B	1	To allocate memory	To switch the CPU's focus from one process to another	To terminate a process	To load a new program into memory
37	2	What is a process?	A	1	A program in execution	A static program	A set of instructions	A system call
38	2	Suppose that process is in BLOCK state and waiting for some I/O services when service is completed, it goes to the _____ state	C	1	Running	Waiting	Ready	Quit
39	2	What is Process? Give the difference between a process and a program		2				
40	2	Explain different states of a process with a suitable diagram.		4				
41	2	What is Process Control Block? Explain various entries of it.		4				
42	2	What is context switching? Explain significance and elements of PCB.		3				
TOPIC NAME:- Process Scheduling: Scheduling Queue, Types of Scheduling, Scheduling								
43	2	_____ is used for representing ready queue	D	1	Linked List	Binary Tree	Stack	Circular Queue
44	**2**	What type of scheduling is mainly concerned with swapping processes in and out of memory?	B	1	Long-term scheduling	Medium-term scheduling	Short-term scheduling	I/O scheduling
45	2	In which type of scheduling does the operating system decide which of the waiting processes are ready to execute?	B	1	Long-term scheduling	Short-term scheduling	Medium-term scheduling	Real-time scheduling
46	2	Which of the following is not a type of scheduling in operating systems?	C	1	Long-term scheduling	Short-term scheduling	Variable scheduling	Medium-term scheduling
47	2	What is scheduler? Explain queuing diagram representation of process scheduler with figure		4				
48	2	Explain Long term, Medium term and Short term scheduler in detail		3				
49	2	Define: Turnaround Time, Response Time, Waiting Time		3				
50	2	What are the various Scheduling Criteria?		2				
TOPIC NAME:- Scheduling Algorithms: Preemptive & Non-Preemptive, FCFS, SJF, RR, Priority								
51	2	Which scheduling algorithm is designed to give all processes an equal share of the CPU time?	B	1	First-Come, First-Served (FCFS)	Round Robin (RR)	Shortest Job Next (SJN)	Priority Scheduling
52	2	Which of the following scheduling algorithms is non-preemptive?	D	1	Round Robin	Shortest Job First (SJF)	Priority Scheduling	Both B and C
53	2	In Round Robin scheduling, what is typically used to determine how long a process can run before being interrupted?	B	1	Burst Time	Quantum Time	Turnaround Time	Waiting Time
54	2	In Priority Scheduling, what happens when two processes have the same priority?	A	1	The process that arrived first is executed first	The process with the longest burst time is executed first.	Both processes are executed simultaneously	It leads to starvation of one process
55	2	What is the primary goal of using Shortest Job First (SJF) scheduling?	C	1	Minimize waiting time.	Maximize CPU utilization.	Minimize turnaround time.	Ensure fairness among processes.
56	2	Which scheduling algorithm gives preference to processes with the smallest burst time?	B	1	First-Come, First-Served (FCFS)	Shortest Job First (SJF)	Round Robin (RR)	Priority Scheduling
57	2	In which scheduling algorithm does the process with the highest priority get executed first?	D	1	First-Come, First-Served (FCFS)	Round Robin (RR)	Shortest Job Next (SJN)	Priority Scheduling
58	2	Which of the following is a characteristic of preemptive scheduling?	B	1	A process cannot be interrupted once it starts execution.	The CPU can be taken away from a running process.	It guarantees a minimum turnaround time for all processes	It is less complex than non-preemptive scheduling
59	2	Explain Context Switching. Compare FCFS and RR scheduling techniques		3				
60	2	Find average waiting time for Shortest job first scheduling, and Round robin scheduling algorithm. Process CPU burst time P1 6 P2 8 P3 5 P4 2 CPU burst time is given in millisecond and time quantum is 4.		3				

61	2	Suppose that the following processes arrive for the execution at the Times indicated. Each process will run the listed amount of time. Assume preemptive scheduling. What is the turnaround time for these processes with Shortest Job First Scheduling algorithm? Process Arrival Time(ms) Burst Time(ms) P1 0.0 8 P2 0.4 4 P3 1.0 1		3				
62	2	Consider the following set of processes with length of CPU burst time given in milliseconds. Process Burst Time Priority P1 10 3 P2 1 1 P3 2 3 P4 1 4 P5 5 2 Assume arrival order is: P1, P2, P3, P4, P5 all at time 0 and a smaller priority number implies a higher priority. Draw the Gantt charts illustrating the execution of these processes using preemptive priority scheduling.		5				
63	2	Five jobs A through E arrive at a computer center with following details Job Arrival Time CPU Time A 0 9 B 1 5 C 2 2 D 3 6 E 4 8 Calculate the Turnaround Time and Waiting Time for all processes applying (i) First Come First Serve (ii) Shortest Job First and (iii) Round Robin (with Time Quanta=3) algorithms.		5				
64	2	What is average waiting time & average turn around times of all processes for FCFS, SJF, non-preemptive priority and Round Robin (Quantum=1) scheduling: Processes Burst-time Priority p1 8 5 p2 1 1 p3 3 2 p4 2 4 p5 5 3 (Assume small number implies higher priority and all 5 processes have arrived in order p1,p2, p3, p4, p5 all at time =0)		4				
65	2	Consider the Following set of Processes , with the length of the CPU-burst time given in milliseconds: Process Burst Time Priority P1 10 3 P2 1 1 P3 2 3 P4 1 4 P5 5 2 The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time=0. a. Draw Four Gantt charts illustrating the execution of these processes using FCFS, SJF, non-preemptive Priority (a small priority number implies a higher priority) , and Round Robin (quantum =1) scheduling. b. What is the average waiting time of all processes for each of the scheduling algorithms in part a ? c. What is the average Turn around time of all processes for each of the scheduling		4				

		algorithms in part a ?						
66	2	Consider the following set of processes with length of CPU burst time given in milliseconds. Process Burst Time Priority P1 10 5 P2 1 1 P3 2 3 P4 1 4 P5 5 2 Assume arrival order is: P1, P2, P3, P4, P5 at time 0,1,2,3,4 respectively and a smaller priority number implies a higher priority. Draw the Gantt charts for preemptive and non-preemptive priority scheduling. Calculate Average Turnaround Time and Average Waiting Time.		4				
67	2	Consider the following set of processes with the length of CPU burst time given in the milliseconds. Process Arrival Burst Time Priority P1 0 8 3 P2 1 1 1 P3 2 3 2 P4 3 2 3 P5 4 6 4 Calculate average turnaround time and average waiting time for First-come first served scheduling, Shortest job first scheduling and Priority scheduling algorithm.		5				
68	2	Differentiate between preemptive and non-preemptive scheduling. Solve following by SJF preemptive and non-preemptive. Draw Gantt Chart, Average Waiting Time and Average Turnaround Time. Which one is better as per average turnaround time? Process Arrival Time Burst Time P1 0 6 P2 1 4 P3 3 5 P4 5 3		4				
69	2	Consider the following five processes with the length of the CPU burst time in milliseconds. Process Burst Time Priority P1 10 3 P2 1 1 P3 2 3 P4 1 4 P5 5 2 Processes are Assumed to have arrived at time 0. For the above set of processes find the average waiting time and average around time for each of the following scheduling algorithm using Gantt chart. Consider 1 is highest priority. 1. SJF 2. Non preemptive Priority 3. RR (Q = 2)		5				
70	2	Consider Five Processes P1 to P5 arrived at same time. They have estimated running time 10,2,6,8 and 4 seconds, respectively. Their Priorities are 3,2,5,4 and 1, respectively with 5 being highest Priority. Find the average turnaround time and average waiting time for RoundRobin (q=3) and Priority Scheduling algorithm.		4				

71	2	Consider the following set of processes with the length of the CPU-burst time and Arrival time given in millisecond. Process Arrival Time Burst Time P1 0 4 P2 1 3 P3 2 1 P4 3 2 P5 4 5 Apply First Come First Serve process scheduling algorithm and calculate the Following (I)Turn around Time for all processes and average turn around time. (II) Waiting time for each processes and average waiting time.		5				
72	2	Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with arrival time 0, and given burst time, draw GANTT chart and find the average waiting time using the FCFS and SJF scheduling algorithm. Process Burst Time P1 21 P2 3 P3 6 P4 2		4				
73	2	Solve following by SJF preemptive and non-preemptive. Draw Gantt Chart, Average Waiting Time and Average Turnaround Time. Which one is better as per average turnaround time? Process Arrival Time Burst time P1 0 7 P2 2 4 P3 4 2 P4 7 1		4				
74	2	Consider the following processes with their arrival times and burst times: P1: Arrival = 0, Burst = 5 P2: Arrival = 1, Burst = 3 P3: Arrival = 2, Burst = 8 P4: Arrival = 3, Burst = 6 What is the average waiting time in FCFS scheduling?		3				
75	2	Given the following processes with their burst times: P1: Burst = 8 P2: Burst = 4 P3: Burst = 9 P4: Burst = 5 Calculate the average turnaround time when scheduled using SJF (non-preemptive).		3				
76	2	Consider the following processes with their burst times and a time quantum of 2: P1: Burst = 10 P2: Burst = 4 P3: Burst = 6 What is the average waiting time?		3				
77	2	Given the following processes with their burst times and priorities (lower number means higher priority): P1: Burst = 4, Priority = 2 P2: Burst = 1, Priority = 1 P3: Burst = 8, Priority = 3 What is the average waiting time using non-preemptive priority scheduling?		3				

78	2	Five batch jobs A to E arrive at same time. They have estimated running times 10,6,2,4 and 8 minutes. Their priorities are 3,5,2,1 and 4 respectively with 5 Being highest priority. For each of the following algorithm determine mean Process turnaround time. Ignore process swapping overhead. Round Robin, Priority Scheduling, FCFS, SJF.		4				
79	2	For the following processes with burst times and a time quantum of 3: P1: Burst = 7 P2: Burst = 5 P3: Burst = 2 Calculate the average turnaround time.		3				
TOPIC NAME:- Thread: Concept, Types, States, System Calls: fork(), exec(), wait(), exit()								
80	2	_____ is called lightweight process	A	1	Thread	Program	LightProcess	SimpleProcess
81	2	What is the purpose of the exec() system call?	C	1	To create a new process	To terminate a process	To load a new program into a process's address space	To wait for a child process to terminate
82	2	Which system call is used to wait for a child process to finish execution?	D	1	exec()	exit()	Fork()	wait()
83	2	Which of the following statements about threads is true?	A	1	Threads share the same memory space within a process.	Threads cannot communicate with each other.	Each thread has its own memory space.	Threads are completely independent of each other.
84	2	What is the primary advantage of using threads in an application?	C	1	Easier debugging	Increased memory usage	Improved performance through concurrency	Simplicity of design
85	2	A system call to create a child process is _____	B	1	Exit()	Fork()	Wait()	Child()
86	2	Process termination in Operating System does by	A	1	Exit()	Fork()	Wait()	Child()
87	2	Which of the following is a type of thread?	C	1	User thread	Kernel thread	Both A and B	None of the above
88	2	Explain Thread Life Cycle with diagram		3				
89	2	Give the Difference between Thread and Process.		2				
90	2	What are two differences between user level threads and kernel level threads? Under what circumstances is one type better than the other?		3				
UNIT - 3 - Inter Process Communication								
TOPIC NAME:-Race Conditions, Critical Section, Mutual Exclusion								
91	3	If three threads are trying to share a single object at the same time which condition will arise in the scenario?	A	1	Race Condition	Recursion	Time-lapse	Critical Situation
92	3	To avoid the Race Condition, the number of processes that may be simultaneously inside their critical section is	C	1	6	8	1	0
93	3	Which of the following occurs between two processes because the outcome of the computation depends on the relative times that the two processes execute their respective critical section ?	B	1	Abstraction	Race Condition	Deadlock	Synchronisation
94	3	Which of the following is free from Race Condition ?	B	1	Preemptive Kernel	Non-Preemptive Kernel	Monolithic Kernel	None of the mentioned
95	3	If a process is executing in its critical section, then no other processes can be executing in their critical section. What is this condition called?	A	1	mutual exclusion	critical exclusion	synchronous exclusion	asynchronous exclusion
96	3	Which one of the following is a synchronization tool?	C	1	Thread	Pipe	Semaphore	Socket
97	3	A semaphore is a shared integer variable _____	A	1	that can not drop below zero	that can not be more than zero	that can not drop below one	that can not be more than one
98	3	Mutual exclusion can be provided by the _____	C	1	mutex locks	binary semaphores	both mutex locks and binary semaphores	none of the mentioned
99	3	Process synchronization can be done on _____	C	1	hardware level	software level	both hardware and software level	none of the mentioned

100	3	A monitor is a module that encapsulates _____	D	1	shared data structures	procedures that operate on shared data structure	synchronization between concurrent procedure invocation	all of the mentioned
101	3	To enable a process to wait within the monitor _____	A	1	a condition variable must be declared as condition	condition variables must be used as boolean objects	semaphore must be used	all of the mentioned
102	3	Provide an overview of a Mutex and present a pseudocode example that demonstrates how to achieve mutual exclusion using this synchronization mechanism?		4				
103	3	Compare and contrast different mechanisms for achieving mutual exclusion, such as locks, semaphores, and monitors.		3				
104	3	Outline the necessary conditions that must be satisfied for mutual exclusion in critical sections.		3				
105	3	Discuss the strategies used to solve the critical section problem. Provide an example of one solution and explain how it ensures mutual exclusion.		4				
TOPIC NAME:-Hardware Solution, Strict Alternation, Peterson's Solution								
106	3	Peterson's solution is restricted to _____ processes that alternate execution between their critical sections and remainder sections	C	1	One	Three	Two	All of the above
107	3	We use the mutex lock to protect critical regions and thus prevent race conditions.the term mutex is short for	B	1	mutual exception	mutual exclusion	mutually explained	mutual excluded
108	3	Select the correct statements regarding mutex lock to prevent race condition. I. a process must acquire the lock before entering a critical section; II. a process need not acquire the lock before entering a critical section; III. it releases the lock when it exits the critical section IV. a process must acquire the lock when it exits the critical section.	A	1	1 and 3	2 and 4	3 and 4	1 and 4
109	3	A semaphore S is an integer variable that, apart from initialization, is accessed only through two standard atomic operations:	D	1	exec() and exit()	exec() and signal()	wait() and exit()	wait() and signal()
110	3	a classic _____solution to the critical-section problem known as Peterson's solution	B	1	Hardware based	software-based	software and Hardware based	None of the above
111	3	Discuss the Peterson's solution for the race condition with algorithm.		5				
112	3	Define strict alternation and explain its operation in achieving mutual exclusion between two processes.		4				
TOPIC NAME:-The Producer Consumer Problem, Semaphores, Monitors, Message Passing								
113	3	Which of the following is True for Shared Memory and message passing interprocess communicatoin. I. In the shared-memory model, a region of memory that is shared by cooperating processes is established. II. In the message-passing model, communication takes place by means of messages exchanged between the cooperating processes III. Message passing is useful for exchanging Biger amounts of data, because no conflicts need to be avoided. IV. Message passing is also Difficult to implement in a distributed system than shared memory. V. Shared memory can be faster than message passing, since message-passing systems are typically implemented using system calls	B	1	1 2 3 only	1 2 5 only	2 3 4 only	1 3 4 only

114	3	In producer–consumer problem using shared memory ,Select appropriate statement from the below.	A	1	we must have available a buffer of items that can be filled by the producer and emptied by the consumer	A producer can consume one item while the consumer is producing another item	No synchronization required between The producer and consumer , so that the consumer does not try to consume an item that has not yet been produced.	the buffer will reside in a region of memory that need not be to shared by the producer and consumer processes.
115	3	Using producer–consumer problem using Shared Memory Interprocess Communication using Unbounded Buffer:	D	1	There is Limit on the size of the buffer.	Assumes a fixed buffer size.	the consumer must wait if the buffer is empty, and the producer must wait if the buffer is full	There is no practical limit on the size of the buffer. The consumer may have to wait for new items, but the producer can always produce new items
116	3	Message passing provides a mechanism to allow processes to communicate and to synchronize their actions	B	1	By sharing the same address space	without sharing the same address space	by sharing the same process number and Process Identifier	None of the above
117	3	The bounded buffer problem is also known as _____	C	1	Readers – Writers problem	Dining – Philosophers problem	Producer – Consumer problem	None of the mentioned
118	3	Consider the methods used by processes P1 and P2 for accessing their critical sections whenever needed, as given below. The initial values of shared boolean variables S1 and S2 are randomly assigned.	D	1	Mutual exclusion but not progress	Progress but not mutual exclusion	Neither mutual exclusion nor progress	Both mutual exclusion and progress
119	3	In producer-consumer problem, when buffer status is partially empty_____ has to wait	C	1	Producer	Consumer	None	Both
120	3	discuss the Problem of Critical Sections as illustrated by the Producer-Consumer Problem?Elaborate on one specific solution in detail, highlighting its mechanisms and effectiveness in addressing synchronization issues.		5				
121	3	Define message passing in the context of inter-process communication (IPC). What are its primary advantages over shared memory?		3				
TOPIC NAME:-Classical IPC Problems:Reader's-Writer Problem, Dining Philosopher Problem								
122	3	The dining – philosophers problem will occur in case of _____	A	1	5 philosophers and 5 chopsticks	4 philosophers and 5 chopsticks	3 philosophers and 5 chopsticks	6 philosophers and 5 chopsticks
123	3	A deadlock free solution to the dining philosophers problem _____	B	1	necessarily eliminates the possibility of starvation	does not necessarily eliminate the possibility of starvation	eliminates any possibility of any kind of problem further	none of the mentioned
124	3	Elaborate on the Inter-Process Communication (IPC) challenge illustrated by the Dining Philosophers Problem? Please provide insights into the dynamics involved and the implications for synchronization in concurrent systems.		4				
125	3	Provide an overview of the Readers and Writers Problem, along with a detailed solution? State the challenges associated with synchronization and the mechanisms used to address them.		4				
UNIT - 4 - Deadlock Handling								
TOPIC NAME:-4.1 Concepts of Deadlock, Deadlock Characterization								
126	4	If the resources are always preempted from the same process, _____ can occur.	D	1	Deadlock	Aging	System Crash	Starvation

127	4	Which of the following condition is required for a deadlock to be possible?	D	1	Hold and wait	No resource can be forcibly removed from a process holding it	Mutual exclusion	All of the mentioned
128	4	An edge from process Pi to Pj in a wait for graph indicates that _____	A	1	Pi is waiting for Pj to release a resource that Pi needs	Pj is waiting for Pi to release a resource that Pj needs	Pi is waiting for Pj to leave the system	Pj is waiting for Pi to leave the system
129	4	If the wait for graph contains a cycle _____	B	1	then a deadlock does not exist	then a deadlock exists	then the system is in a safe state	either deadlock exists or system is in a safe state
130	4	Define and explain Deadlock.		2				
131	4	Define Deadlock. State the four conditions which must occur to have deadlock in the system.		2				
132	4	What is RAG? Explain briefly.		4				
133	4	Write about Resource Allocation Graph algorithm.		4				
134	4	What is deadlock? Describe in brief necessary conditions that should hold for deadlock to occur.		4				
TOPIC NAME:- 4.2 Deadlock Handling Methods: Prevention, Avoidance, Detection and Recovery								
135	4	If deadlocks occur frequently, the detection algorithm must be invoked _____	B	1	rarely	frequently	rarely & frequently	None of the mentioned
136	4	A system is in the safe state if _____	A	1	the system can allocate resources to each process in some order and still avoid a deadlock	the system can allocate resources to each process in the order of their request and still avoid a deadlock	Both A and B	None of the mentioned
137	4	A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock _____	A	1	can never occur	may occur	has to occur	None of the mentioned
138	4	Which one of the following is the deadlock avoidance algorithm?	C	1	Round-robin algorithm	Ostrich algorithm	Banker’s algorithm	Elevator algorithm
139	4	What is the drawback of banker’s algorithm?	D	1	In advance processes rarely know how much resource they will need	The number of processes changes as time progresses	Resource once available can disappear	All of the mentioned
140	4	The circular wait condition can be prevented by _____	C	1	using thread	using pipes	defining a linear ordering of resource types	All of the mentioned
141	4	As per banker’s algorithm if Allocation (1,3,5,4), Need (1,0,0,2), Available (1,5,3,2) then new available resource is _____	D	1	Resource is not granted	(2,8,8,6)	Request is granted	Both B & C
142	4	A process must be holding at least one resource and waiting to acquire additional resources that are currently being held by other processes. This condition for deadlock is known as _____ .	B	1	Mutual Exclusion	Hold and wait	No preemption	Circular wait
143	4	A problem encountered in multitasking when a process is perpetually denied necessary resources is known as _____.	A	1	Deadlock	Starvation	Inversion	Aging

144	4	To avoid deadlock _____.	A	1	There must be a fixed number of resources to allocate	Resource allocation must be done only once	All deadlocked processes must be aborted	The inversion technique can be used
145	4	In deadlock prevention, the number of resources requested by a process _____ the total number of resources available in the system.	B	1	Equal to	must not exceed	Less than	must exceed
146	4	For non-sharable resources like a printer, mutual exclusion _____.	A	1	must exist	must not exist	may exist	None of the mentioned
147	4	A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.	A	1	Resource allocation state	System storage state	Operating system	Resources
148	4	In deadlock avoidance, the state of the system will continuously be checked for ____.	C	1	Safe state	unsafe state	Both a and b	None of these
149	4	The wait-for graph deadlock detection algorithm is applicable when _____	D	1	all resources have a single instance	all resources have multiple instances	all resources have a single AS multiple instances	all of the mentioned
150	4	If we preempt a resource from a process, the process cannot continue with its normal execution and it must be _____.	C	1	queued	aborted	rolled back	terminated
151	4	Which conditions must hold for resource deadlock? Explain any one method to avoid dead lock.		3				
152	4	What is Dead lock? When it occurs? How to recover from it.		4				
153	4	List Deadlock Recovery Techniques and explain one of them.		4				
154	4	How deadlock can be prevented? Explain any two ways of doing deadlock prevention.		5				
155	4	Explain Banker's algorithm to avoid deadlock with multiple resources.		4				
156	4	Explain Banker's algorithm for a single resource.		4				
157	4	What do you mean by Deadlock Avoidance? Explain the use of Banker's Algorithm for Deadlock Avoidance with illustration.		5				
158	4	For which system Banker's algorithm is applicable? Apply banker's algorithm to the following snapshot taken at time t0 and find out process execution sequence that lands a system in safe state. Allocation: A B C; Max: A B C; Available: A B C P_0: 0 1 0; 7 5 3; 3 3 2 P_1: 2 0 0; 3 2 2 P_2: 3 0 2; 9 0 2 P_3: 2 1 1; 2 2 2 P_4: 0 0 2; 4 3 3		5				

159	4	Consider the snapshot of the system with Five Processes and Four types of resources A,B,C,D.Currently Available set of resources is (1,5,2,0). Answer the following Questions using bankers algorithm. 1) Find the content of Need Matrix. 2) Is the System in Safe State? 3) If request from Process P1 arrives for (0,4,2,0) can the request be granted immediately Allocation: P0 (0 0 1 2), P1 (1 0 0 0), P2 (1 3 5 4), P3 (0 6 3 2), P4 (0 0 1 4) Max: P0 (0 0 1 2), P1 (1 7 5 0), P2 (2 3 5 6), P3 (0 6 5 2), P4 (0 6 5 6)		5				
160	4	Consider a system with the following information. Determine whether the system is in safe state. If not in safe state, give reasons. If the system is in safe state, find the safe sequence of processes. Consider Need assuming Maximum Allocation. Total Resources(31) Total Resources of R1 type – 15 Total Resources of R2 type – 8 Total Resources of R3 type – 8 Processes / Max (R1 R2 R3) / Alloc (R1 R2 R3): 1 (5 6 3 / 2 1 0); 2 (8 5 6 / 3 2 3); 3 (4 9 2 / 3 0 2); 4 (7 4 3 / 3 2 0); 5 (4 3 3 / 1 0 1)		5				
161	4	Using Banker's algorithm, answer the following questions:- i) How many resources of type A, B, C, D are there? ii) What are the contents of need matrix? iii) Find if the system is in safe state? If it is, find the safe sequence. Process / Max A,B,C,D / Allocation A,B,C,D / Available A,B,C,D: P0 (6012 / 4001 / 3211); P1 (2750 / 1100); P2 (2356 / 1254); P3 (1653 / 0633); P4 (1656 / 0212)		5				
162	4	If each resource type has several instances, then a cycle does not necessarily imply that a deadlock has occurred. Explain with resource allocation graph.		3				
UNIT - 5 - File System								
TOPIC NAME:-File attributes,File operations,File Type,File Access								
163	5	A file system commonly used on Linux and Unix-based operating systems is	C	1	File Allocation Table	New Technology File System	Extended File System	Hierarchical File System
164	5	A unit of storing data on a secondary storage device such as a hard disk or other external media is a	A	1	File	Attributes	Identifier	Size
165	5	A unique tag, usually a number, determine the file within the file system; it is the non-human-readable name for the file.	C	1	File	Attributes	Identifier	Size

166	5	An older file system used by older versions of Windows and other operating systems is	A	1	FAT	NTFS	ext	APFS
167	5	The operation that makes call to announce that the file is coming to set some attributes is	B	1	Delete	Create	Open	Close
168	5	A call which is restricted form of write and can only add data to the end of file is	C	1	Seek	Read	Append	Write
169	5	For a random access files, a method is needed to specify from where to take the data and repositions the file pointer to a specific place in the file is	A	1	Seek	Read	Append	Write
170	5	A file type that commands to the command interpreter is	B	1	Executable	Batch	Print or View	Markup
171	5	A file type in which related files grouped into one compressed file is called	C	1	Executable	Object	Archive	Markup
172	5	Extension for textual data and documents is	C	1	exe	lib	xml	wp
173	5	A process could read all the bytes or records from a file in order, starting at the beginning, but could not skip around and read them out of order in	A	1	Sequential File Access	Random File Access	Directory structures	Contiguous Allocation
174	5	Files whose bytes or records can be read in any order are called	B	1	Sequential File Access	Random File Access	Directory structures	Contiguous Allocation
175	5	FAT stands for _____	A	1	File Allocation Table	File Access Table	File Acessment Table	File Archive Table
176	5	Writes short notes on file types & file access		3				
177	5	Explain file attributes in brief		3				
178	5	Explain file operations in brief		2				
179	5	Explain Random File Access and Sequential File Access		3				
TOPIC NAME:- Directory structures, Directory operations, File allocation methods, File System Consistency, Directory Implementation								
180	5	_____is defined by the disk address and length (in block units) of the first block.	B	1	Linked List Allocation	Contiguous Allocation	Indexed Allocation	Sequential File Access
181	5	_____begins at the root and follows a down to the specified file, giving the directory names on the path.	A	1	Absolute path name	Relative path name	Acyclic-Graph Directories	Contiguous Allocation
182	5	When the number of files increases or when the system has more than one user then the unique-name rule is violated from which of the following	A	1	Single Level Directory system	Two-Level Directorysystem	Tree-Structured Directories	Acyclic-Graph Directories
183	5	When a directory has been read, which operation to be performed to free up internal table space	C	1	Delete	Opendir	Closedir	Link
184	5	A technique that allows a file to appear in more than one directory is called	D	1	Append	NTFS	Seek	Linking
185	5	Which of the following solves the problem by bringing all the pointers together into one location?	C	1	Linked List Allocation	Contiguous Allocation	Indexed Allocation	Sequential File Access
186	5	List the different file implementation methods and explain them in detail						
187	5	Explain directory structures						
188	5	Explain Tree-Structured Directories and Acyclic-Graph Directories						
189	5	Explain various directory operations in brief						
190	5	Explain in detail Indexed Allocation						
191	5	Explain File System Consistency						

192	5	Explain Linear list and Hash table						
193	5	What is “I node”?						
UNIT - 6 - Memory Management Policies								
TOPIC NAME:-Basic H/W, Address Binding, Logical and Physical Adress Space, Swapping								
194	6	In memory management, Base register holds the _____ Address	A	1	Smallest	largest	Average	None of the mentioned
195	6	The limit register specifies the_____.	C	1	Smallest Address	Largest Address	Size of the Rang	Process
196	6	The way of binding of instruction and data to main memory address is/are	D	1	Compile time	Load time	Execution time	All of the above
197	6	An address generated by CPU is konow as_____Address.	B	1	Physical	Logical	Scientific	Specific
198	6	Logical address is also called _____ Address	C	1	Physical	Scientific	Virtual	Specific
199	6	An address seen by the memory unit that is the one loaded into the memory address register of memory is commonly reffered to as_____Address.	A	1	Physical	Scientific	Virtual	Specific
200	6	The event of copying process from main memory to hard disk is known as____.	B	1	Roll in	Roll out	Rolling	Roll back
201	6	The event of copying process from hard disk to main memory is known as____.	A	1	Roll in	Roll out	Rolling	Roll back
202	6	The set of all logical address generatedby a program is a _____.	B	1	Physical Address Space	Logical Address Space	Scientific Address Space	Specific Address Space
203	6	In an operating system (OS), _____ is a device or location that stores data that is not currently in the main memory.	D	1	pysical store	space store	address store	backing store
204	6	Explain swapping in memory management.		4				
205	6	Explain in details basic hardware of memory.		3				
206	6	Explain Address binding in detail.		3				
TOPIC NAME:- Contiguous Memory Allocation, Allocation Methods (First Fit, Next Fit, Best								
207	6	In memory management allocation algorithm uesd is/are_____.	D	1	Frist Fit	Best Fit	Worst Fit	All of the mentioned
208	6	Which of the below factor considered the most in management of memory.	D	1	Efficient use of memory	speedy allocation of memory	speedy deallocation of memory	All of the mentioned
209	6	_____a chunk of physical memory that is the same size as a system page.	A	1	frame	Pages	Mode	Space
210	6	Vrtual memory divided in to small fixed size chunks of the same size is known as_____.	B	1	frame	Pages	Mode	Space
211	6	The number is used as an index into a page table is_____.	B	1	Index number	Page number	Page Offset	Frame Offset
212	6	To define the physical memory address f frame number is combined with_____.	C	1	Index number	Page number	Page Offset	Frame Offset
213	6	What is fragmentation?		2				
214	6	What is the need of fragmentation?		2				
215	6	What is fragmentation? Explain the difference between internal and external fragmentation		5				
216	6	Explain the following allocation algorithms: 1) First-fit 2) Best-fit		4				

217	6	Explain the Allocation Methods of a Disk Space?		5				
218	6	Explain the following allocation algorithms: 1) Worst-fit 2) Best-fit		4				
219	6	Given memory partition of 100K, 500K, 200K, 300K, and 600K in order, How would each of the First-fit and Best-fit algorithms place the processes of 212K, 417K, 112K and 426K in order? Which algorithm makes the most efficient use of memory? Show the diagram of memory status in each cases		3				
220	6	Given five memory partitions of 100K, 500K, 200K, 300K, and 600K in order, How would each of the Best-fit and Worst-fit algorithms place the processes of 212K, 417K, 112K and 426K in order? Which algorithm makes the most efficient use of memory? Show the diagram of memory status in each cases		3				
221	6	Given six Partition of 300KB, 600KB, 350KB, 200KB, 750KB and 125KB(in order),how would the first-fit and best-fit algorithms places processes of size 115KB, 500KB, 358KB,200KB AND 375KB(in order)?Which algorithm is efficient for the use of memory?		3				
222	6	Given memory partition of 300KB, 600KB, 350KB, 200KB, 750KB and 125KB(in order),how would the best-fit and worst-fit algorithms places processes of size 115KB, 500KB, 358KB,200KB AND 375KB(in order)?Which algorithm is efficient for the use of memory?		3				
223	6	Consider paging system with TLB, all page reference are found 75% times the TLB, if 100ns are required for single memory reference and 100ns are required for the page table, then calculate the effective memory access time? (ignore TLB search time)		3				
224	6	Consider paging system with TLB, all page reference are found 85% times the TLB, if 100ns are required for single memory reference and 50ns are required for the page table, then calculate the effective memory access time? (ignore TLB search time)		3				
225	6	Given memory partition of 10K, 4K, 20K, 18K, 7K, 9K, 12K and 15K in order, How would each of the First-fit and Best-fit algorithms place the processes of 12K, 10K, and 9K in order? Which algorithm makes the most efficient use of memory? Show the diagram of memory status in each cases		3				
226	6	Given memory partition of 10K, 4K, 20K, 18K, 7K, 9K, 12K and 15K in order, How would each of the best-fit and worst-fit algorithms place the processes of 12K, 10K, and 9K in order? Which algorithm makes the most efficient use of memory? Show the diagram of memory status in each cases		3				
227	6	Consider paging system with TLB, all page reference are found 75% times the TLB, if 100ns are required for single memory reference and 100ns are required for the page table, then calculate the effective memory access time? (consider 20ns TLB search time)		3				
228	6	Given memory partition of 100K, 40K, 200K, 180K, 70K, 90K, 120K and 150K in order, How would each of the first, best-fit and worst-fit algorithms place the processes of 120K, 100K, and 90K in order? Which algorithm makes the most efficient use of memory? Show the diagram of memory status in each cases.		3				
TOPIC NAME:- Paging, TLB, and Segmentation								
229	6	Logical memory is broken into blocks of the same size called _____	C	1	frames	Backing Store	Pages	None of these
230	6	The memory management scheme that permits the physical address space of a process to be non contiguous is_____.	C	1	Framing	Modelling	Paging	Allocating
231	6	To define the physical memory address f frame number is combined with_____.	C	1	Index number	Page number	Page Offset	Frame Offset

232	6	Each entry in TLB consists	C	1	a key	a value	Both A and B	None of these
233	6	_____is a memory administration approach used in operating systems that divides memory into multiple-sized segments.	A	1	Segmentation	Paging	Frame	Offset
234	6	Explain paging with example.		5				
235	6	Define and explain Segmentation.		3				
236	6	What is segmentation? How it is different from paging?		3				
237	6	Explain multiprogramming with fixed partition.		4				
238	6	Compare Multiprogramming with Fixed Partition and Multiprogramming with Variable Partitions with diagram.		5				
239		What is Paging? What is Page Table? Explain the conversion of Virtual Address to Physical Address in Paging with example.		5				
UNIT - 7 -Basics of Virtual Memory								
TOPIC NAME:- Concept of Virtual Memory,Demand Paging								
240	7	What is the primary purpose of virtual memory?	B	1	Increase physical memory	Allow larger programs to run on limited physical memory	Speed up memory access	Reduce the size of applications
241	7	Which of the following is a benefit of using virtual memory?	B	1	Elimination of paging	Increased security	Simplified memory management	Faster disk operations
242	7	In a paged memory system, what is a page?	A	1	A fixed-size block of memory	A variable-size block of memory	A section of a process	A type of CPU register
243	7	Which of the following statements is correct regarding virtual memory?	A	1	It allows processes to exceed physical memory limits.	It eliminates the need for physical memory.	It requires all data to reside in physical memory.	It is only used in multiprogramming systems.
244	7	_____ is the concept in which a process is copied into the main memory from the secondary memory according to the requirement.	B	1	Paging	Demand paging	Segmentation	Swapping
245	7	When a program tries to access a page that is mapped in address space but not loaded in physical memory, then _____	C	1	segmentation fault occurs	fatal error occurs	page fault occurs	no error occurs
246	7	Virtual memory is _____.	C	1	An extremely large main memory	An extremely large secondary memory	An illusion of extremely large main memory	A type of memory used in super computers
247	7	_____ is a high speed cache used to hold recently referenced page table entries a part of paged virtual memory .	A	1	Translation Lookaside buffer	Inverse page table	Segmented page table	All the above
248	7	In a virtual memory environment	C	1	segmentation and page tables are stored in the cache and do not add any substantial overhead	slow down the computer system considerable	segmentation and page tables are stored in the RAM	none of the above
249	7	Demand paged memory allocation	A	1	allows the virtual address space to be independent of the physical memory	allows the virtual address space to be a multiple of the physical memory size	allows deadlock tobe detected in paging schemes	is present only in Windows NT
250	7	Dirty bit is used to show	C	1	Page with corrupted data	Wrong page in memory	Page that is modified after being loaded in the cache memory	page that is less frequently accessed
251	7	If hardware does not support _____ then a multi - user and multi - processing operating system cannot be implemented.	B	1	At least two modes of CPU execution	Demand paging	DMA for disk transfer	Address translation

252	7	Compare and contrast virtual memory and physical memory. How do they interact to provide an effective computing environment?		4				
253	7	What is virtual memory, and how does it enhance the functionality of an operating system?		3				
255	7	Discuss the performance implications of demand paging. How do factors such as page size and access patterns impact overall system performance?		3				
256	7	Discuss the advantages of using virtual memory in modern computing environments. How does it affect program execution and resource management?		3				
TOPIC NAME:- Page Replacement Algorithms (FIFO, LRU, Optimal, Second Chance), Thrashing								
257	7	What does the term 'page fault' refer to?	A	1	Accessing a page that is not in memory	A failure in the page replacement algorithm	A system crash caused by paging	The successful loading of a page into memory
258	7	What does thrashing refer to in the context of virtual memory?	B	1	Inefficient disk usage	Excessive page faults leading to constant swapping	Increasing physical memory	A method to optimize memory access
259	7	Effective access time is directly proportional to _____	A	1	page-fault rate	hit ratio	memory access time	none of the mentioned
260	7	In FIFO page replacement algorithm, when a page must be replaced _____	A	1	oldest page is chosen	newest page is chosen	random page is chosen	none of the mentioned
261	7	Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?	C	1	first in first out algorithm	additional reference bit algorithm	least recently used algorithm	counting based page replacement algorithm
262	7	A process is thrashing if _____	A	1	it is spending more time paging than executing	it is spending less time paging than executing	page fault occurs	swapping can not take place
263	7	Working set model for page replacement is based on the assumption of _____	B	1	modularity	locality	globalization	random access
264	7	Consider a virtual memory system that uses First In First Out (FIFO) page replacement policy and it allocates a fixed number of frames to a process. Consider the following two statements, 1: Sometimes the page fault rate is increased if the number of page frames allocated is increased. 2: Some programs do not exhibit Locality of reference. Which of the following is true?	C	1	1 is false and 2 is true	both 1 and 2 are false	both 1 and 2 are true but 2 is not the reason for 1	both 1 and 2 are true and 2 is the reason for 1
265	7	What is the impact of thrashing?	C	1	It improves system performance	It implies excessive page I/O	It decreases the degree of multiprogramming	It reduces page I/O
266	7	What is thrashing, and how can it occur in a system utilizing demand paging? What strategies can be employed to mitigate thrashing?		3				
267	7	Given a reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3 and a frame size of 3. How many page faults occur using the FIFO page replacement algorithm? Show the contents of the frames after each reference.		3				
268	7	Consider the reference string: 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5 with 3 page frames.Calculate the number of page faults using the LRU page replacement algorithm. Illustrate the state of the page frames at each step.		3				
269	7	Given the reference string: 4, 1, 2, 3, 0, 4, 5, 2, 1, 0, 5 and a frame size of 4. Use the optimal page replacement algorithm to determine the number of page faults. Explain the reasoning behind each replacement decision.		4				

270	7	Use the same reference string: G, H, I, J, G, K, H, I, J, L and apply FIFO, LRU, and Optimal algorithms with 3 frames. Compare the number of page faults for each algorithm. What conclusions can be drawn about their performance based on this reference string?		5				
271	7	Reference string: A, B, C, D, A, E, B, A, C, D, E with 3 frames. Calculate the total number of page faults using LRU and show the contents of the frames after each access.		3				
272	7	Reference string: M, N, O, P, Q, R, S, M, N, O, R with 3 frames. Using the optimal page replacement algorithm, find the number of page faults and justify each replacement decision.		3				
273	7	For the Page Reference String: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0. 1. 7, 0, 1 Calculate the Page Faults applying (i) Optimal (ii) LRU and (iii) FIFO Page Replacement Algorithms for a Memory with three frames.		3				
274	7	Consider the following page reference string: 0,1,7,2,3, 2,7,1,0,3. How many page faults occur with four page frames and eight pages and the four frames are initially empty in case of FIFO and LRU.		3				
275	7	What is demand paging? For given reference string: a, b, c, d, c, a, d, b, e, b, a, b, c, d and the size of the frame be 4.How many page faults occur in case of FIFO policy? How many page faults occur in case of LRU? What is Belady's anomaly?		4				
276	7	Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults would occur for the following replacement algorithms, assuming four frames? Remember all frames are initially empty, so your first unique pages will all cost one fault each. LRU replacement, FIFO replacement.		4				
277	7	Consider following page reference string : 5 4 3 2 5 4 6 5 4 3 2 6 Calculate page faults using FIFO page replacement algorithm with: a) page frame= 3 b) page frame =4. Justify belady's anomaly.		5				
278	7	Consider the following page reference string: 1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2 How many page faults would occur for following page replacement algorithm, considering 3 frames and 4 frames. i) FIFO ii) LRU iii) Optimal		3				
279	7	Given page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6 Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm.		3				
280	7	A web server processes requests for different resources. The reference string of resources accessed is: HTML, CSS, JS, HTML, IMAGE, CSS, VIDEO, HTML, JS, VIDEO with 4 frames. Determine the number of page faults using FIFO and illustrate the frame contents after each resource request.		4				
281	7	A video editing application accesses clips in a specific order. The reference string is: ClipA, ClipB, ClipC, ClipA, ClipD, ClipB, ClipC, ClipE, ClipA with 3 frames. Using the optimal page replacement algorithm, determine the number of page faults and explain each replacement decision.		4				
UNIT - 8 - Secondary Storage and input Output Management								
TOPIC NAME:- I/O Devices, Device Controllers, Device Drivers, Disk Hardware Structure, Disk Scheduling(FCFS,SSTF,SCAN,C-SCAN,LOOK,C-LOOK)								

282	8	The keeps state information about the use of I/O components.	C	1	CPU	OS	Kernel	Shell
283	8	When hardware is accessed by reading and writing to the specific memory locations, then it is called	D	1	port-mapped I/O	controller-mapped I/O	bus-mapped I/O	memory-mapped I/O
284	8	The heads of the magnetic disk are attached to a that moves all the heads as a unit.	C	1	spindle	track	disk arm	pin
285	8	The consists of two key components: the initial startup time, and the time taken to traverse the tracks that have to be crossed once the access arm is up to speed.	C	1	access time	rotational delay	seek time	Transfer time
286	8	On a movable head system, the time it takes to position the head at the track is known as ……	A	1	seek time	rotational delay	access time	Transfer time
287	8	The time disk controller takes for the beginning of the sector to reach the head is known as ……..	B	1	seek time	rotational delay	access time	Transfer time
288	8	The set of tracks that are at one arm position make up a	B	1	magnetic disks	cylinders	assemblies	electrical disks
289	8	In policy, when the last track has been visited in one direction, the arm is returned to the opposite end of the disk and the scan begins again	D	1	Last in first out	Shortest service time first	SCAN	Circular SCAN
290	8	What is device driver? Explain its function in brief.		3				
291	8	Explain First Come First Serve and Shortest Seek Time First Disk Scheduling algorithms.		4				
292	8	Enlist any Three Disk Arm Scheduling Algorithms and explain them briefly.		5				
293	8	Briefly describe SCAN.		4				
294	8	Explain various Disk Arm Scheduling Algorithms.		5				
295	8	Explain SSTF and LOOK disk scheduling algorithms with examples.		5				
296	8	Write short note: Direct memory access (DMA)		3				
297	8	Disk requests come in to the disk for cylinders 10, 22, 20, 2, 40, 6 and 38. A seek takes 6 msec per cylinder move. How much seek time is for Closest cylinder next algorithm? Initially arm is at cylinder 20.		5				
298	8	Disk requests come in to the disk driver for cylinders 10, 22, 20, 2, 40, 6, and 38, in that order. A seek takes 6 msec per cylinder moved. How much seek time is needed for 1. First-come, first served. 2. Elevator algorithm. (initially moving upward) In all cases, the arm is initially at cylinder 20.		5				

299	8	Consider the following disk request sequence for a disk with 100 tracks 45, 21, 67, 90, 4, 50, 89, 52, 61, 87, 25. Head pointer starting at 50 and moving in left direction. Calculate head movement for the following algorithms. 1. FCFS 2. SSTF		5				
300	8	Suppose that a disk drive has 200 cylinders. Numbered 0 to 199. The drive is currently serving at cylinder 60 and previous request was at cylinder 35. The queue of pending requests in FIFO order is 70, 140, 50, 125, 30, 25, 160 Starting from the current head position what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of following disk scheduling algorithms. a) FCFS b) SSTF c) SCAN d) LOOK		5				
301	8	Suppose Disk drive has 300 cylinders. The current position of head is 90. The queue of pending request is 36,79,15,120,199,270,89,170 Calculate head movement for the following algorithms. 1. FCFS 2. SSTF		5				
302	8	Given the following track requests in the disk queue, compute for the Total Head Movement (THM) of the read/write head and seek time needed for a). First come first served b). Shortest seek time first c). SCAN: 95, 180, 34, 119, 11, 123, 62, 64 Consider that the read/write head is positioned at location 50. A seek takes 5ms per cylinder move.		5				
303	8	Suppose that a disk drive has 200 cylinders, numbered 0 to 199. The drive is currently serving at cylinder 53 and previous request was at cylinder 43. The queue of pending requests in FIFO order is: 98, 183, 37, 122, 14, 124, 65, 67 Starting from the current head position what is the total distance(in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms. a)FCFS b)SSTF c)SCAN d)LOOK e)C-SCAN f)C-LOOK		5				
304	8	Define seek time and rotational latency. Assume that a disk drive has 200 cylinders, numbered 0 to 199. The drive is currently serving a request at cylinder 100. The queue of pending requests is 23, 89, 132, 42, 189.Calculate seek time for FCFS and SSTF disk scheduling algorithm.		5				
305	8	Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, The queue of pending requests, in FIFO order, 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130 Starting from current head position what is total distance (in cylinders) that disk arm moves to satisfy all the pending request for FCFS and SSTF disk scheduling algorithm?		5				
306	8	Consider a disk queue with I/O requests of the following cylinders in their arriving order 6,10,12,54,97,73,128,15,44,110,34,45 The disk head is assumed to be at Cylinder 23 and moving in the direction of decreasing number of cylinders. The disk consists of total 150 cylinders. Calculate the disk head movement using SCAN and C - SCAN scheduling algorithm.		5				
UNIT - 9 - Security and Protection Mechanism								
TOPIC NAME:-Security Environment, Protection Mechanism, User Authentication Methods								

307	9	Which of the following is a strong password?	A	1	P@ssw0rd	!augustdelhi	19thAugust88	Delhi88
308	9	in an operating system refers to the mechanisms implemented by the operating system to ensure the security and integrity of the system.	A	1	System protection	Access control	Encryption	Firewall
309	9	is a software program that monitors and controls incoming and outgoing network traffic based on predefined security rules	B	1	Antivirus software	Firewall	System protection	System updates
310	9	is used to protect the system from malware, and other malicious software.	A	1	Antivirus software	Firewall	System protection	System updates
311	9	keeps the operating system up-to-date with the latest security patches to prevent known vulnerabilities from being exploited	A	1	System updates	Antivirus software	Firewall	System protection
312	9	gives the system access only to authorized users and tackles the system's external threats	A	1	Security	System protection	System updates	Antivirus software
313	9	deals with who has access to the system resources and tackles the system's internal threats.	A	1	Protection	System updates	Antivirus software	Security
314	9	is a form of malware that downloads on a computer by impersonating a trustworthy program and can get unauthorized access to a system's login information.	B	1	Worm	Trojan Horse	Trap door	Virus
315	9	is a sort of malware whose main purpose is to keep operating on infected systems while self-replicating and infecting other computers.	A	1	Worm	Trojan Horse	Trap door	Virus
316	9	has the ability to produce duplicate copies that occupy all available resources and prevent any other processes from using them.	A	1	Worm	Trojan Horse	Trap door	Virus
317	9	aims to shut down a computer system or network so that its intended users are unable to access it and prevent authorized users from accessing a system.	D	1	Worm	Trojan Horse	Trap door	Denial of Service
318	9	Which mechanism is implemented in protection to control access to system resources?	C	1	Encryption	Certification	Authorization	none
319	9	Netbus, Subseven, Y3K Remote Administration Tool are types of	B	1	Worm	Trojan Horse	Trap door	Denial of Service
320	9	Robert Morris is an example of	A	1	Internet Worm	Trojan Horse	Trap door	Virus
321	9	Back Orifice, Beast, Zeus, The Blackhole Exploit Kit are example of	B	1	Worm	Trojan Horse	Trap door	Denial of Service
322	9	Write short note on Design Principles of Security		3				
323	9	Explain Domain Protection mechanism in detail		3				

324	9	Explain Access metrics mechanism.		3				
325	9	What is Access Control list? Explain in brief		3				
326	9	Explain Trojan Horse, Trap Door, Virus and Warms program threats.		3				
327	9	Explain User Authentication Methods		3				
UNIT-10 - Unix/Linux Operating System								
TOPIC NAME:-Role & Function of Kernel, Linux Kernel Structure , Elementary Linux Command and Shell Programming								
328	10	Which of the following is a Unix command to list all files in a directory?	B	1	list	ls	dir	show
329	10	What is the purpose of the chmod command in Unix?	C	1	Change file content	Change file owner	Change file permissions	Change file name
330	10	How do you delete a directory and its contents in Unix/Linux?	D	1	del	remove -f	deleteall	rm -r
331	10	What is the Unix command to display the present working directory?	A	1	pwd	where	home	presentdir
332	10	What is the core of the Unix operating system?	B	1	Shell	Kernel	Command	Script
333	10	What does the grep command do?	A	1	Searches for a string in a file	Deletes a file	Saves a file	Moves a file
334	10	How do you search for a manual page in Unix/Linux?	C	1	info	help	man	guide
335	10	Which command is used to display the content of a file in Unix?	B	1	show	cat	disp	display
336	10	Which of the following is the symbol for piping in Unix/Linux?	D	1	%	*	#	|
337	10	What does the ps command do in Unix/Linux?	B	1	Displays file permissions	Displays process status	Displays current users	Displays system information
338	10	Which of the following is a process control command in Unix/Linux?	A	1	kill	ctrlp	stopproc	ps
339	10	What command is used to change file ownership in Unix/Linux?	B	1	chmod	chown	change	ownfile
340	10	What command is used to copy files in Unix/Linux?	C	1	copy	cop	cp	duplicate
341	10	What does the df command display?	B	1	File size	Disk space usage	Memory usage	CPU usage
342	10	Which of the following file types does Unix/Linux not recognize?	D	1	Regular file	Directory file	Symbolic link file	Executable file
343	10	Explain in brief roles/ functions of shell		3				
344	10	Explain the directory Structure or file system structure of the Unix.		4				
345	10	Write a shell script print multiplication table of given number.		4				
346	10	Write a shell script find out reverse of given number.		4				
347	10	Write a shell script to Check given number is Armstrong or not.		4				
348	10	Write a shell script which will accept a number b and display first n prime numbers as output.		4				
349	10	Write a shell script to check entered string is palindrome or not.		4				
350	10	Write a shell script to read n numbers as command arguments and sort them in ascending order.		4				
351	10	Write a shell script to find the greater number from three number.		4				

352	10	Write a shell script to find the number is perfact square or not.		4				