

University of Mumbai
Examination June 2021

Examinations Commencing from 1st June 2021

Program: - S.E. (Computer) (REV. -2019) (Choice Based- C Scheme)

Curriculum Scheme: Rev2019

Examination: SE Semester IV

Course Code: CSC404 and Course Name: OPERATING SYSTEM

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Objectives of Operating System are:
Option A:	Consistency, Effective, Ability to design
Option B:	Convenience, Elaborate, Ability to test
Option C:	Convenience, Efficiency, Ability to evolve
Option D:	Convenience, Elaborate, Ability to design.
2.	What are the major drawbacks of serial processing?
Option A:	Scheduling and Set-up Time
Option B:	Scheduling and Tolerance
Option C:	Synchronization and Tolerance
Option D:	Tolerance and Set-up Time
3.	The central idea behind the simple batch-processing scheme is the use of a piece of software known as the
Option A:	Operating system
Option B:	monitor
Option C:	CPU
Option D:	TLB
4.	What are the Desirable Hardware features?
Option A:	Memory protection, Testing. Privileged instructions, Interrupts.
Option B:	Memory partitioning, Timer. Privileged instructions, Interrupts.
Option C:	Memory protection, Timer. Protected commands, Interrupts.
Option D:	Memory protection, Timer. Privileged instructions, Interrupts.
5.	The data structure that enables the OS to support multiple processes and to provide for multiprocessing is
Option A:	Process Control Block
Option B:	Performance Control Block
Option C:	CPU
Option D:	GPU
6.	Preemptive scheduling algorithms are:
Option A:	FCFS, SJF
Option B:	RR, SRTN

Option C:	FCFS
Option D:	SJF
7.	When a process makes a _____, the kernel creates a thread.
Option A:	Generate thread function
Option B:	create thread library function
Option C:	create thread system call
Option D:	thread() function
8.	In Unix, Which system call creates the new process?
Option A:	fork
Option B:	create
Option C:	new
Option D:	Process()
9.	Concurrent access to shared data may result in _____
Option A:	data consistency
Option B:	data insecurity
Option C:	data inconsistency
Option D:	data testing
10.	A situation where several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which access takes place is called _____
Option A:	data consistency
Option B:	race condition
Option C:	aging
Option D:	starvation
11.	The segment of code in which the process may change common variables, update tables, write into files is known as _____
Option A:	program
Option B:	critical section
Option C:	non – critical section
Option D:	synchronizing
12.	The bounded buffer problem is also known as _____
Option A:	Readers – Writers problem
Option B:	Dining – Philosophers problem
Option C:	Producer – Consumer problem
Option D:	Reader-Editor Problem
13.	The dining – philosophers problem will occur in case of _____
Option A:	5 philosophers and 5 chopsticks
Option B:	4 philosophers and 5 chopsticks
Option C:	3 philosophers and 5 chopsticks
Option D:	6 philosophers and 5 chopsticks
14.	CPU fetches the instruction from memory according to the value of _____

Option A:	program counter
Option B:	status register
Option C:	instruction register
Option D:	program status word
15.	Which one of the following is the address generated by CPU?
Option A:	physical address
Option B:	absolute address
Option C:	logical address
Option D:	Test address
16.	_____ is a unique tag, usually a number identifies the file within the file system.
Option A:	File identifier
Option B:	File name
Option C:	File type
Option D:	File location
17.	A process is thrashing if
Option A:	it spends a lot of time executing, rather than paging
Option B:	it spends a lot of time paging than executing
Option C:	it has no memory allocated to it
Option D:	High segmentation activity
18.	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 For LRU page replacement algorithm with 4 frames, the number of page faults is?
Option A:	10
Option B:	14
Option C:	8
Option D:	11
19.	In _____ information is recorded magnetically on platters.
Option A:	magnetic disks
Option B:	electrical disks
Option C:	assemblies
Option D:	cylinders
20.	The time taken to move the disk arm to the desired cylinder is called the
Option A:	positioning time
Option B:	random access time
Option C:	seek time
Option D:	rotational latency

Subjective/Descriptive questions

Q2. (20 Marks)	Solve any Four out of Six	5 marks each
A	<i>Differentiate between monolithic, layered and microkernel structure of OS.</i>	
B	<i>Explain Producer Consumer problem using Semaphore</i>	
C	<i>Explain Bankers Algorithm in detail.</i>	
D	<i>Explain Process Scheduling Algorithms.</i>	
E	<i>Discuss Operating System as Resource Manager.</i>	
F	<i>Write a short note on Process Control Block</i>	

Q3. (20 Marks)	Solve any Four out of Six	5 marks each
A	<i>Compare the performance of FIFO and LRU based on number of page hit for the following string. Frame size = 3; String (pages): 2 3 2 1 5 2 4 5 3 2 5 2</i>	
B	<i>Explain any 2 file organization types with diagram.</i>	
C	<i>Given six memory partitions of 300 KB, 600 KB, 350 KB, 200 KB, 750 KB, and 125 KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of size 115 KB, 500 KB, 358 KB, 200 KB, and 375 KB (in order)? Rank the algorithms in terms of how efficiently they use memory.</i>	
D	<i>Explain Interrupt driven IO and discuss the advantages of Interrupt driven IO over programmed IO.</i>	
E	<i>Explain virtual memory concept with respect to paging, segmentation and TLB</i>	
F	<i>Compare Disk Scheduling Algorithms.</i>	