University of Mumbai

Examination June 2021

Examinations Commencing from 1st June 2021

Program: Computer Engineering

Curriculum Scheme: Rev 2019 "C" Scheme

Examination: SE Semester IV

Course Code: CSC404 and Course Name: Operating System

Time: 2 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Core of operating system is _____
Option A:	Shell
Option B:	Script
Option C:	Commands
Option D:	Kernel
2.	Multiprogramming systems_____
Option A:	Are easier to develop than single programming systems
Option B:	Execute each job faster
Option C:	Execute more jobs in the same time period
Option D:	Are used only one large mainframe computers
3.	Once operating system is loaded, execution of applications is in _____ mode
Option A:	Kernel
Option B:	User
Option C:	Read-Only
Option D:	Standalone
4.	We want to keep the CPU as busy as possible, This criteria refers to as
Option A:	Burst Time

Option B:	CPU utilization
Option C:	Response time
Option D:	Throughput
5.	A Process Control Block (PCB) does not contain which of the following?
Option A:	Code
Option B:	Data
Option C:	Stack
Option D:	Bootstrap program
6.	Which of the following state transitions is not possible?
Option A:	Blocked to running
Option B:	Ready to running
Option C:	Running to blocked
Option D:	Blocked to ready
7.	SRTN Scheduling is type of
Option A:	Preemptive scheduling
Option B:	Non preemptive scheduling
Option C:	Multi level scheduling
Option D:	Non blocking scheduling
8.	_____is a synchronization tool and _____operation decrements its value.
Option A:	thread, wait
Option B:	semaphore, signal
Option C:	semaphore, wait

Option D:	socket, signal
9.	A scenario in which thread *A* performs an action that causes thread *B* to perform an action that in turn causes thread *A* to perform its original action is called____
Option A:	Spinlock
Option B:	Livelock
Option C:	Belady's anomaly
Option D:	Deadlock
10.	Which algorithm requires that the system must have some additional *a priori* information available about resources?
Option A:	Deadlock prevention
Option B:	Deadlock recovery
Option C:	Deadlock avoidance
Option D:	Deadlock allocation
11.	Which one is Reusable resource in the system?
Option A:	Interrupts
Option B:	Main memory
Option C:	Signals
Option D:	Information in I/O buffers
12.	What is the name of the memory allocation strategy in which the OS allocates the smallest free partition that is big enough to hold the process?
Option A:	Worst Fit
Option B:	Best Fit
Option C:	First Fit
Option D:	Next Fit

13.	If the size of the logical address space is 2^m, and a page size is 2^n addressing units then how many high order bits of a logical address designate the page number?
Option A:	m-n
Option B:	m
Option C:	n
Option D:	m+n
14.	What is the name of the system where processes initially reside in secondary memory and when it needs to execute a process OS swaps it into main memory?
Option A:	Internal fragmentation
Option B:	Context Switch
Option C:	Demand Paging
Option D:	External Fragmentation
15.	Instruction or data near to the current memory location that is being fetched , may be needed soon in near future. this is the principal of _____
Option A:	Spatial Locality
Option B:	Temporal Locality
Option C:	Buffering
Option D:	Branching
16.	A low-level integer used to identify an opened file at the kernel level, in Linux called as _____
Option A:	Spin lock
Option B:	file pointer
Option C:	file descriptor
Option D:	Signal
17.	a named collection of related information that is recorded on secondary storage is called as _____

Option A:	Process
Option B:	Memory
Option C:	Interrupt
Option D:	File
18.	Which one is not the correct purpose of the device controller?
Option A:	Detect/Correct errors
Option B:	Accept commands from software
Option C:	Control arm motion
Option D:	Buffering
19.	If the drive controller is busy and a process needs I/O to or from a disk, then ____
Option A:	the request will be ignored
Option B:	the request will be placed in the queue of pending requests for that drive
Option C:	the request will be processed immediately
Option D:	the request will be transferred to different controller
20.	In which of the following algorithms, the disk head moves from one end to the other , servicing requests along the way, when the head reaches the other end, it immediately returns to the beginning of the disk without servicing any requests on the return trip?
Option A:	LOOK
Option B:	SCAN
Option C:	C-LOOK
Option D:	C-SCAN

subjective/ descriptive questions

Q2	**Solve any Four out of Six** **5 marks each**

A	*Describe microkernel operating system structure*
B	*What is thread? Describe any four advantages of multithreading model.*
C	*Why is semaphore known as a synchronisation tool?Give an example.*
D	*Describe how logical address is converted into physical address when the program and its associated data is divided into segments*
E	*Summarize various File Attributes*
F	*With the help of a diagram explain I/O management.*

Q3.	**Solve any Two Questions out of Three 10 marks each**
A	*Compare short term, medium term and long term scheduler along with diagram*
B	*Consider a disk with 51(0 to 50) cylinders. While the seek to cylinder 11 is in progress, the request comes for the following cylinders, in the order 1, 36, 16, 34, 9, 12 and 40. The arm moves in an increasing number of cylinders. What is the total distance the arm moves to complete pending requests using FCFS and LOOK algorithms?*
C	*describe in detail requirements that intends to achieve memory Management*

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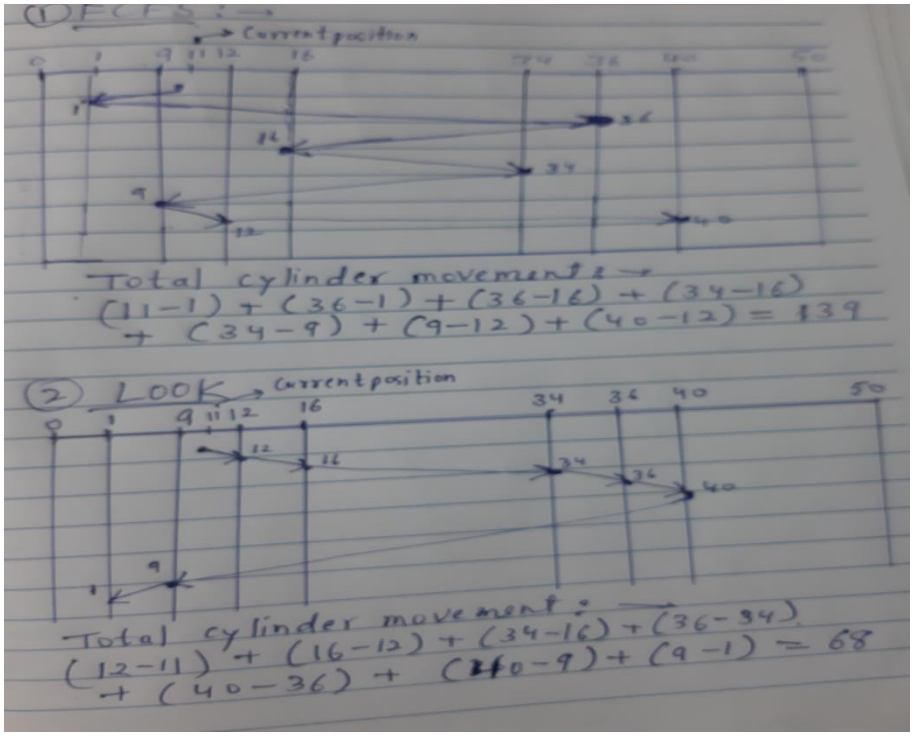
Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	C
Q3.	B
Q4	B
Q5	D
Q6	A
Q7	A
Q8.	C
Q9.	B
Q10.	C
Q11.	B
Q12.	B
Q13.	A
Q14.	C
Q15.	A
Q16.	C

Q17.	D
Q18.	D
Q19.	B
Q20.	D

Answer subjective/ descriptive questions

Q2	**Solve any Four out of Six 5 marks each**
A	*Description 5 marks*
B	*Thread defination 1 mark,Ecah advantage 1 mark*
C	*Definition semaphore 2 marks, example and explanation 3 marks.*
D	*1 mark for diagram,4 marks to describe Segmentation mechanism*
E	*5 File Attributes one mark each*
F	*Diagram 2 marks, explanation 3 marks.*

Q3.	**Solve any Two Questions out of Three 10 marks each**
A	*Diagram 4 marks, comparison any three points 2 marks each*
B	*FCFS 5 marks and Look 5 marks* 
C	*Appropreate explanation on various Requirements of memory management*

	10 marks