Sample Questions

Computer Engineering / Artificial Intelligence and Data Science / Artificial Intelligence and Machine Learning / Computer Science and Engineering (Artificial Intelligence and Machine Learning) / Computer Science and Engineering (Data Science) / Computer Science and Engineering (Internet of Things and Cyber Security Including Block Chain Technology) / Cyber Security / Data Engineering / Internet of Things (IoT)

Subject Name: Database Management System **Semester: IV**

Multiple Choice Questions

	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.	i. 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.	i. 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.	a. 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
21.	The interface is provided by the _____ to access the services of operating system,
Option A:	System calls
Option B:	API
Option C:	Library
Option D:	Assembly instructions
22.	Which runs on computer hardware and serve as platform for other software to run on?
Option A:	Operating System
Option B:	Application Software
Option C:	System Software
Option D:	Rootkit
23.	_____structure designs the operating system by removing all non-essential components from the kernel and implementing them as system and user programs.
Option A:	Layered
Option B:	Microkernel
Option C:	Modular
Option D:	Hybrid
24.	Which is not state of process in state diagram
Option A:	New
Option B:	Create
Option C:	running
Option D:	waiting
25.	Convoy effect is drawback of
Option A:	FCFS
Option B:	SJF
Option C:	ROUND ROBIN
Option D:	PRIORITY SCHEDULING
26.	In Shortest remaining time next Scheduling Algorithm, when a process arrives at the ready queue, its burst time is compared with the burst time of
Option A:	All process
Option B:	Currently running process
Option C:	Parent process
Option D:	Init process

27.	Process is _____
Option A:	program in High level language kept on disk
Option B:	contents of main memory
Option C:	a program in execution
Option D:	lightweight thread
28.	The system call used to implement signal operation of semaphore is____
Option A:	getup( )
Option B:	wakeup( )
Option C:	start( )
Option D:	continue( )
29.	An operating system contains 3 user processes each requiring 2 units of resource R.The minimum number of units of R such that no deadlocks will ever arise is
Option A:	3
Option B:	5
Option C:	4
Option D:	6
30.	Which one is the incorrect necessary condition for deadlock to occur?
Option A:	Mutual exclusion
Option B:	Circular wait
Option C:	Hold and wait
Option D:	Pre-emption
31.	The value of semaphore can be manipulated using_____
Option A:	Entry section
Option B:	Remainder section
Option C:	Critical section
Option D:	Non- critical section
32.	logical address is generated by _____
Option A:	page table
Option B:	CPU
Option C:	Segment table
Option D:	IO unit
33.	Which technique is used to overcome external fragmentation when Dynamic Partitioning is used during the process to memory allocation?
Option A:	compaction
Option B:	page fault
Option C:	context switch
Option D:	polling
34.	What is the name of memory allocation technique, where the OS searches for a memory block from last placement and chooses the next available block large enough to fit a process ?
Option A:	Worst Fit

Option B:	Best Fit
Option C:	First Fit
Option D:	Next Fit
35.	when page is allocated to the frame and in this allocation if a memory frame is not completely full then it leads to the _____
Option A:	Dynamic Linking
Option B:	External fragmentation
Option C:	Internal fragmentation
Option D:	Page fault
36.	which among the options below is not the desirable property of files ?
Option A:	Long-term existence
Option B:	Shareable between processes
Option C:	Short-term existence
Option D:	Structure
37.	What is the basic element of data in a file?
Option A:	Field
Option B:	Array
Option C:	Track
Option D:	Sector
38.	a. In_____algorithm the disk arm goes as far as the final request in each direction, then reverses direction immediately without going to the end of the disk.
Option A:	FCFS
Option B:	C-SCAN
Option C:	SCAN
Option D:	LOOK
39.	The time it takes to position the head at the track on a movable head is known as_____
Option A:	Rotational delay
Option B:	Seek time
Option C:	Access time
Option D:	Transfer rate
40.	In the layered approach of Operating Systems _____
Option A:	Bottom Layer(0) is the User interface
Option B:	Highest Layer(N) is the User interface
Option C:	Bottom Layer(N) is the hardware
Option D:	Highest Layer(N) is the hardware

41.	In layered approach layers are selected such that each uses functions (operations) and services of _____
Option A:	Only topmost level layers
Option B:	Only upper level layers
Option C:	Only lower-level layers
Option D:	Only bottom most level layers
42.	Most of routine system call are written in
Option A:	java
Option B:	C & C++
Option C:	Python
Option D:	COBOL
43.	The number of processes completed per unit time is known as_____
Option A:	Output
Option B:	Efficiency
Option C:	Throughput
Option D:	Capacity
44.	A single thread of control allows the process to perform _____
Option A:	Only one task at a time
Option B:	Multiple tasks at a time
Option C:	Only two tasks at a time
Option D:	Only three tasks at a time
45.	_____Scheduler reduces degree of multiprogramming
Option A:	Short term scheduler
Option B:	Medium term scheduler
Option C:	Long term scheduler

Option D:	CPU term scheduler
46.	Shortest job first scheduling is special case of
Option A:	Priority scheduling
Option B:	Round robin
Option C:	Multilevel scheduling
Option D:	FCFS
47.	The fastest form of IPC provided in UNIX system is
Option A:	Virtual memory
Option B:	Shared memory
Option C:	Main memory
Option D:	Secondary memory
48.	Which one is not Reusable resource in the system?
Option A:	databases
Option B:	Main memory
Option C:	Interrupts
Option D:	Processor
49.	Deadlock avoidance requires knowledge of future
Option A:	process
Option B:	resource
Option C:	program
Option D:	application
50.	A graph that is an important tool used to characterize and allocate resources to processes is
Option A:	Location graph

Option B:	Resource allocation graph
Option C:	Time graph
Option D:	Process graph
51.	When the page table is kept in main memory, where does the page table base register (PTBR) points to?
Option A:	page table
Option B:	segment table
Option C:	limit of segment
Option D:	program counter
52.	which one among the below option is the problem seen in contiguous dynamic memory partitioning
Option A:	internal fragmentation
Option B:	external fragmentation
Option C:	deadlock
Option D:	page fault
53.	To achieve Memory protection in a paged environment a bit is set to valid or invalid ,what does bit value “invalid” signifies here?
Option A:	the page is in the process's logical address space
Option B:	the page is not in the process's physical address space
Option C:	the page is in the process's physical address space
Option D:	the page is not in the process's logical address space
54.	Each entry in the segment table has _____
Option A:	page number and a page offset
Option B:	segment base and a segment limit
Option C:	page number and a segment limit
Option D:	a segment offset and a segment limit

55.	The kind of directory structure where The Master File Directory is indexed by user name, and each entry points to the User File Directory for that user is called as _____
Option A:	Two-level directory structure
Option B:	Single level directory structure
Option C:	General Graph Directory
Option D:	Acyclic-Graph Directories
56.	The file access method where Records are stored and accessed in key sequence is called as _____
Option A:	Direct access
Option B:	Indexed access
Option C:	Pile access
Option D:	Sequential access
57.	Which buffer holds the output for a device?
Option A:	Control
Option B:	Spool
Option C:	Status
Option D:	Output
58.	Device driver is required by which of the following component?
Option A:	Cache memory
Option B:	Registers
Option C:	Hard disk
Option D:	Main memory
59.	Which one of the following is the incorrect pair of device and its controller?
Option A:	Disk - disk controller

Option B:	Keyboard- Video adapter
Option C:	Mouse- USB controller
Option D:	Monitor- Video adaptor
60.	In the layered approach of Operating Systems _____
Option A:	Bottom Layer(0) is the User interface
Option B:	Highest Layer(N) is the User interface
Option C:	Bottom Layer(N) is the hardware
Option D:	Highest Layer(N) is the hardware

Descriptive Questions

1	*Describe microkernel operating system structure*
2	*What is thread? Describe any four advantages of multithreading model.*
3	*Why is semaphore known as a synchronisation tool?Give an example.*
4	*Describe how logical address is converted into physical address when the program and its associated data is divided into segments*
5	*Summarize various File Attributes*
6	*With the help of a diagram explain I/O management.*
7	*Compare short term, medium term and long term scheduler along with diagram*
8	*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?*
9	*describe in detail requirements that intends to achieve memory Management*
10	*With help of a diagram explain how the system call will be generated?*
11	*Compare preemptive and non preemptive scheduling algorithm?*
12	*Define deadlock. List the conditions that lead to deadlock.*
13	*Describe how logical address is converted into physical address when the process is strictly divided into equal size chunks*
14	*Summarize file system organization architecture*
15	*Explain disk organization using diagram.*
16	*Give the importance of proper time quantum selection in Round Robin CPU Scheduling algorithm. Draw Gantt Chart and Find average waiting time and*

<table>
<tr><td></td><td>average turnaround time for following using Round Robin Scheduling (Time quantum of 3 msec) and FCFS scheduling: :

<table><tr><td>Process</td><td>Burst Time(msec)</td></tr><tr><td>P1</td><td>10</td></tr><tr><td>P2</td><td>3</td></tr><tr><td>P3</td><td>5</td></tr><tr><td>P4</td><td>7</td></tr></table></td></tr>
<tr><td>17</td><td>What is the producer consumer problem? Provide solution to producer consumer problem using semaphores.</td></tr>
<tr><td>18</td><td>Discuss the operation of translation lookaside buffer(TLB) in terms of memory management</td></tr>
<tr><td>19</td><td>What is an operating system? Describe role of Kernel in operating system</td></tr>
<tr><td>20</td><td>Describe criteria in CPU scheduling</td></tr>
<tr><td>21</td><td>What is the Dining Philosophers problem?Give one solution.</td></tr>
<tr><td>22</td><td>explain the problem of thrashing in detail</td></tr>
<tr><td>23</td><td>Describe various requirements for file management system</td></tr>
<tr><td>24</td><td>Define following terms in relation with disk management: Rotational delay, Transfer rate, Access time, Seek time, Cylinder.</td></tr>
<tr><td>25</td><td>With the help of diagrams explain different multithreading models</td></tr>
<tr><td>26</td><td>Explain Banker’s algorithm for deadlock avoidance. How is it different from deadlock detection?</td></tr>
<tr><td>27</td><td>Apply FIFO,LRU,OPTIMAL(OPT) page replacement algorithms on the following page sequence

1,2,3,4,5,1,4,2,3,4

and calculate number page of HIT and MISS occurred</td></tr>
</table>