Hall Ticket No:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

II B.Tech I Semester (MR20-2020-21 Batch) Mid Term Examinations-I, December-2021

Branch: **CSE** Time: **90 Mins** Date:

Answer ALL the Questions

MODULE-I

S No	Questions	Marks	Blooms Taxonomy Level	CO
1	**What** is a System call? **Explain** different types of system calls.	5	L2	1
2	**Illustrate** the structure of operating system	5	L3	1
3	**Discover** the objectives and services of the operating system	5	L3	1
4	**Describe** about Cache memory?	5	L2	1
5	**Classify** Operating system Generations?	5	L2	1
6	**Describe** Direct Memory Access?	5	L2	1
7	**Discuss** about Basic Elements of computer System?	5	L2	1
8	**Demonstrate** Memory hierarchy?	5	L2	1

MODULE-II

S No	Questions	Marks	Blooms Taxonomy Level	co
1	Consider the following processes. **Apply** Round Robin scheduling is used with a time quantum of 2. Calculate the average waiting time	5	L3	2
2	What is critical section? **Apply** hardware solution for critical section problem.	5	L3	2
3	Explain a)CPU scheduling criteria b)Threads	5	L2	2

Process Name	Burst Time
P1	10
P2	1
P3	2
P4	5
P5	10

<table>
<tr><td>4</td><td>Illustrate Petersons solution and semaphores provide a solution for critical section problem</td><td>5</td><td>L2</td><td>2</td></tr>
<tr><td>5</td><td>What are different schedulers in Operating system
Analyze preemptive SJF works for the given data
<table>
<tr><th>Process Name</th><th>Burst Time</th></tr>
<tr><td>P1</td><td>10</td></tr>
<tr><td>P2</td><td>1</td></tr>
<tr><td>P3</td><td>2</td></tr>
<tr><td>P4</td><td>5</td></tr>
</table></td><td>5</td><td>L3</td><td>2</td></tr>
<tr><td>6</td><td>Define a process. Explain the life cycle of a process with a neat sketch</td><td>5</td><td>L2</td><td>2</td></tr>
<tr><td>7</td><td>What is a deadlock? Explain necessary conditions for deadlock?</td><td>5</td><td>L2</td><td>2</td></tr>
<tr><td>8</td><td>Explain Banker’s algorithm for deadlock avoidance with an example?</td><td>5</td><td>L3</td><td>2</td></tr>
</table>

MODULE - III

S No	**Questions**	**Marks**	**Blooms Taxonomy Level**	**co**
1	Describe paging Concept?	**5**	**L2**	**3**
2	Illustrate Internal and External Fragmentations.	**5**	**L3**	3
3	Describe Segmentation in detail?	**5**	**L2**	3
4	Explain Contiguous memory?	**5**	**L2**	**3**

Prepared By Name: **HOD Signature**

Signature:

Hall Ticket No:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

II B.Tech I Semester (MR20-2020-21 Batch) Mid Term Examinations-I, December-2021

Subject Code & Name: A0511- **Operating System** Max. Marks: **25M**

Branch: **CSE** Time: **90 Mins** Date:

Answer ALL the Questions:

S. NO.	Questions	Ans
	Module-1	
1	Which among the following acts as an interface between user and hardware A. Software B. operating System C. System call D. None	B
2	OS is what type of software A. Application software B. Embedded software C. System software D. Critical System software	C
3	Which acts as a resource manager in a computer A. OS B. Hardware C. Control Unit D. ALU	A
4	Frequently accessed data items are stored in A. RAM B. ROM C. Secondary Memory D. Cache Memory	D
5	In which system every node has its own resources A. Parallel Systems B. Distributed Systems C. Cluster Systems D. ALL	B
6	Which is not an OS A. Linux B. Windows C. Oracle D. DOS	C
7	Which is the heart of OS A. System call B. Kernel C. Scheduler D. Dispatcher	B
8	Which program first runs when a computer is powered on A. OS B. RAM C. System Call **D.** Bootstrap	D
9	Bootstrap is an example of A. Software C.Hardware B. Middleware D. Firmware	C

10	A software generated interrupt is called as A. Trap B. Error C. Bug D. None	A
11	Advantage of multiprocessor systems is A. Increased throughput B. Increased Reliability C. Both D. None	C
12	Example of Uniprogramming OS is A. Linux B. Windows C. DOS D. Unix	C
13	Fastest means of access of memory is provided by A. Registers B. RAM C. Cache memory D. ROM	A
14	In which multiprocessing each processor performs all tasks within the OS A. Asymmetric Multiprocessing B. Symmetric Multiprocessing C. Both D. None	B
15	Ability of main memory to accommodate more than one process at a time refers to A. Uniprogramming B. Multiprocessing C. Uniprocessing D. Multiprogramming	D
16	Kernel mode of OS is also called A. System mode B. Supervisor mode C. Privileged mode D. All of the above	D
17	If mode bit is zero it represents which mode A. User mode B. Kernel mode C. Interrupt mode D. OS mode	B
18	If mode bit is one it represents which mode A. User mode C. Kernel mode B. Interrupt mode D. OS mode	A
19	In which type of computing every node can either be a server or client. A. Distributed Computing B. Peer-Peer Computing C. Cluster Computing D. Grid Computing	B
20	Which type of OS is used in Embedded Systems A. Network OS B. Distributed OS C. Time Sharing OS D. Real Time OS	D

21	CPU utilization is maximized by which OS A. Serial Processing B. Network OS C. Time Sharing D. Batch OS	D
22	Response time is less in which OS A. Serial Processing B. Network OS C. Time Sharing D. Batch OS	C
23	Which among the following is not a service of OS A. Program Execution B. File System Management C. Hardware Correction D. Security	C
24	In which interface user has to enter commands into a file A. Batch Interface B. CLI C. GUI D. None of the above	A
25	CLI stands for A. Command Line Interpreter B. Computer Line Interface C. Computer Line Interpreter D. Command Line Interface	D
26	Which provides an interface to the services made available by OS A. System Programs B. System Calls C. System Software D. Application Software	B
27	In which mode system calls are executed A. System mode B. User mode C. Hardware mode D. Software mode	A
28	Fork is an example of which type of system call A. File management C. Device Management B. Process Management D.IO management	B
29	Which system call is used to create a new process A. Create B. New C. Fork D. Born	C
30	Compiler is an example of A. System Program B.System Call C. Scheduler D.Dispatcher	A
31	Which is an example of simple structure of OS A.Linux B.DOS C.Unix D.Windows	B

32	In layered architecture lowest level represents what A. User Interface B. Interrupt C. Hardware D. IO management	C
33	In layered architecture top level represents what A. User Interface B. Interrupt C. Hardware D. IO management	A
34	Which among the following allows to run multiple virtual machines on a single hardware A. OS B. JVM C. Virtual Machine Manager D. None of the above	C
35	A program under execution is called as A. File B. Process C. Object D. Class	B
36	Unit of work in a computer is sometimes referred as A. File B. Program C. Process D. Object	C
37	In which section of process executable code is stored A. Data B. Text C. Heap D. Stack	B
38	Which among the following is not a part of process A. Data B. Text C. Heap D. Queue	D
39	To access the services of the operating system, the interface is provided by the _____ A. Library B. System calls C. Assembly instructions D. API	B
40	CPU scheduling is the basis of _____ A. Library B. System calls C. Assembly instructions D. API	B
41	Which one of the following is not true? A. kernel remains in the memory during the entire computer session B. kernel is made of various modules which can not be loaded in running os C. kernel is the first part of the operating system to load into memory during booting D. d) kernel is the program that constitutes the central core of the operating system	B

42	If a process fails, most operating system write the error information to a _____ a) new file b) another running process c) log file d) none of the mentioned	C
43	Which one of the following is not a real time operating system? A. RTLinux B. Palm OS C. QNX D. VxWorks	B
44	What does OS X has? A. monolithic kernel with modules B. microkernel C. monolithic kernel D. hybrid kernel	D
45	In operating system, each process has its own _____ A. open files B. pending alarms, signals, and signal handlers C. address space and global variables D. all of the mentioned	D
46	In operating system, each process has its own _____ A.open files B.pending alarms, signals, and signal handlers C.address space and global variables D. all of the mentioned	C
47	Which of the following is not an operating system? A. Windows B. Linux C. Oracle D. DOS	C
48	When was the first operating system developed? A. 1948 B. 1949 C. 1950 D. 1951	C
49	Which of the following is the extension of Notepad? A. .txt B. .xls C. .ppt D. .bmp	A
50	What is the full name of FAT? A. File attribute table B. File allocation table C. Font attribute table D. Format allocation table	B

Module-2		
51	The scheduler which brings a program from secondary storage to main memory is A. Long Term Scheduler B. Short Term Scheduler C. Medium Term Scheduler D. Dispatcher	A
52	The scheduler which decides that a process has to be scheduled for execution is A. Long Term Scheduler B. Short Term Scheduler C. Medium Term Scheduler D. Dispatcher	B
53	The scheduler which decides to remove a process from main memory is A. Long Term Scheduler B. Short Term Scheduler C. Medium Term Scheduler D. Dispatcher	C
54	A process when created is said to be in which state A. Ready B. New C. Running D. Terminated	B
55	Process waiting for some event represents which state A. Ready B. New C. Running D. Waiting	D
56	PCB stands for A. Process Control Band B. Process Control Block C. Program Control Block D. Process Central Block	B
57	Which is not a attribute of PCB A. PC B. Process Priority C. General Purpose Registers D. IR	D
58	Number of processes in main memory refers to A. Degree of Multiprogramming B. Degree of Main Memory C. Degree of CPU D. Degree of System	A
59	Cooperating processes communicate through A. Intra Process Communication B. Inter Process Communication C. Inter Thread Communication D. Process Synchronization	B

60	A process which is not affected by other process is A.Independent Process B. Dependent Process C. Both D. None	B
61	Which type of buffer potentially stores messages of infinite length A. Zero size buffer B. Bounded Buffer C. Unbounded Buffer D. Trivial Buffer	C
62	Under which scheduling once the CPU has been allocated to a process, the process keep the CPU until it releases it A. Non preemptive B. preemptive C. Selective D. None of the above	A
63	Which component gives control of the cpu to the process selected A. Scheduler B. Kernel C. Dispatcher D. Memory manager	C
64	Time taken by the dispatcher to stop one process and start another is called as A. Throughput B.Waiting time C.Turn around time D. Dispatch latency	D
65	Which among the following is not a scheduling criteria A. Throughput B. Deadlock C. Waiting time D. Turnaround time	B
66	No of processes completed in unit time refers to A. Latency B. Delay C. Throughput D. Efficiency	C
67	Total time spent by the process in the system is A. Turnaround time B. Burst time C. Waiting time D. Response time	A
68	Time required by the process for its execution on CPU A. Turnaround time B. Burst time C. Waiting time D. Response time	B
69	Time from submission of request to the first response generated A.Turnaround time B. Burst time C. Waiting time D. Response time	D

70	The chart used for analyzing CPU scheduling algorithm A. Bar chart B.Pie chart C. Flow chart D. Gantt chart	D
71	Which algorithm selects a process with lowest burst time A. FCFS B. SJF C. Priority D. Round robin	B
72	Which algorithm selects a process with highest priority A. FCFS B. SJF C. Priority D. Round robin	C
73	Which algorithm doesn't face the problem of starvation A. FCFS B. SJF C. Priority D. Round robin	D
74	Smallest unit of process is A. Program B. Thread C. Object D. Job	B
75	In which model every user thread has a corresponding kernel thread A. Many to one B. One to many C. One to one D. Many to many	C
76	A deadlock avoidance algorithm dynamically examines the _____, to ensure that a circular wait condition can never exist. A. resource allocation state B. system storage state C. operating system D. resources	A
77	A state is safe, if A. the system does not crash due to deadlock occurrence B. the system can allocate resources to each process in some order and still avoid a deadlock C. the state keeps the system protected and safe D. All of these	B
78	If no cycle exists in the resource allocation graph A. then the system will not be in a safe state B. then the system will be in a safe state C. either (a) or (b) D. None of these	B
79	The wait-for graph is a deadlock detection algorithm that is applicable when A. all resources have a single instance B. all resources have multiple instances C. both a and b D. None	A

80	An edge from process Pi to Pj in a wait for graph indicates that A. Pj is waiting for Pi to release a resource that Pj needs B. Pi is waiting for Pj to leave the system C. Pj is waiting for Pi to leave the system D. Pi is waiting for Pj to release a resource that Pi needs	D
81	The disadvantage of invoking the detection algorithm for every request is A. overhead of the detection algorithm due to consumption of memory B. excessive time consumed in the request to be allocated memory C. considerable overhead in computation time D. All of these	C
82	A computer system has 6 tape drives, with 'n' processes competing for them. Each process may need 3 tape drives. The maximum value of 'n' for which the system is guaranteed to be deadlock free is A. 2 B. 3 C. 4 D. 1	A
83	A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock A. has to occur B. may occur C. can never occur D. None of these	C
84	A deadlock can be broken by A. abort one or more processes to break the circular wait B. abort all the process in the system C. preempt all resources from all processes D. to preempt some resources from one or more of the deadlocked processes	A
85	Those processes should be aborted on occurrence of a deadlock, the termination of which A. is more time consuming B. incurs minimum cost C. safety is not hampered D. All of these	B
86	If we preempt a resource from a process, the process cannot continue with its normal execution and it must be A. aborted B. . rolled back C. terminated D. queued	B
87	If the resources are always preempted from the same process, _____ can occur A. deadlock B. system crash C. aging D. starvation	D
88	The solution to starvation is A. the number of rollbacks must be included in the cost factor B. the number of resources must be included in resource preemptionresource C. preemption be done instead D. All of these	A
89	m' processes share 'n' resources of the same type. The maximum need of each process doesn't exceed 'n' and the sum of all their maximum needs is always less than m+n. In this setup, deadlock A. can never occur B. may occur	A

	C. has to occur D. None of these	
90	A deadlock eventually cripples system throughput and will cause the CPU utilization to A. increase B. drop C. stay still D. None of these	B
91	The circular wait condition can be prevented by A. defining a linear ordering of resource types B. using thread C. using pipes D. all of the mentioned	A
92	Which one of the following is the deadlock avoidance algorithm? A. banker's algorithm B. round-robin algorithm C. elevator algorithm D. karn's algorithm	B
93	What is the drawback of banker's algorithm? A. in advance processes rarely know that how much resource they will need B. the number of processes changes as time progresses C. resource once available can disappear D. all of the mentioned	D
94	A problem encountered in multitasking when a process is perpetually denied necessary resources is called A. deadlock B. starvation C. inversion D. aging	B
95	To avoid deadlock A. there must be a fixed number of resources to allocate B. resource allocation must be done only once C. all deadlocked processes must be aborted D. inversion technique can be used	A
96	The content of the matrix Need is A. Allocation – Available B. Max – Available C. Max – Allocation D. Allocation – Max	C
97	The request and release of resources are _____ A. command line statements B. interrupts C. system calls D. special programs	C
98	For Mutual exclusion to prevail in the system A. at least one resource must be held in a non sharable mode B. the processor must be a uniprocessor rather than a multiprocessor C. there must be at least one resource in a sharable mode D. All of these	A
99	Deadlock prevention is a set of methods A. to ensure that at least one of the necessary conditions cannot hold B. to ensure that all of the necessary conditions do not hold C. to decide if the requested resources for a process have to be given or not	A

	D. to recover from a deadlock	
100	The disadvantage of a process being allocated all its resources before beginning its execution is A. Low CPU utilization B. Low resource utilization C. Very high resource utilization D. None of these	B
	Module -3	
101	MFT stands for Multiprocessing with fixed number of tasks Multiprogramming with fixed number of tasks Multiuser with fixed number of tasks Multiuser with frequent number of tasks	B
102	Dynamic linking uses _____ Stubs Files Objects None	A
103	MFT and MVT are used in A. Non Contiguous Memory Allocation B. Virtual Memory C. Contiguous Memory Allocation D. Paging	C
104	In Load time binding compiler generates _____ code A. Relative code B. Absolute code C. Machine code D. Relocatable code	D
105	Which of the following algorithms are used for contiguous memory allocation A. Best Fit B. First Fit C. Worst Fit D. All	D
106	Wastage of memory after allocation of process in a block is called as _____ A. External Fragmentation b. Internal Fragmentation B. Compaction D.Paging	B
107	_____ is the solution for External Fragmentation a. Linking b. Loading c. Compaction d. Compiling	C
108	Which of the following is example of non contiguous allocation a.Paging b.Segmentation C. MFT D. MVT	C
109	In paging technique _____ is the data structure used to calculate physical address A.Symbol table B. Page Table C.Segment Table D.Inode Table	B
110	Page table address is stored in which register A.MTBR B. BSA C. PC D. PTBR	D
111	In _____ paging all processes will have single page table A.Hashed paging B.Inverted Paging C.Multilevel Paging D.None	B
112	Logical Address consists of page number and _____ A.Frame Number B.Page Table Number C. Offset D.Block number	C
113	Physical Address consists of _____ and offset A.Frame Number B.Page Table Number C.Offset D. Block number	A
114	Paging also suffers from _____ A.External fragmentation B.Internal Fragmentation C.Compaction D. None	B

115	_____ allows to store data greater than the size of main memory A.Paging B.Segmentation C.MFT D.Virtual Memory	D
116	_____ is the technique to implement Virtual Memory A.MFT B.MVT C. Demand Paging D.Segmentation	
117	When ever requested page is not available in memory _____ has to be performed A.Paging B.Demand Paging C.Page Replacement D,None	C
118	In which algorithm first arrived page will be selected for replacement A.FIFO B.LRU c.MFU D. Optimal	A
119	In which algorithm page which will not be referred in future for long time will be replaced A.FIFO B. LRU C. MFU D.Optimal	D
120	Increase in number of frames will increase number of page faults refers to A. Demand Paging B.Virtual memory C.Belady's Anomaly D.Segment fault	C
121	Which algorithm/s face Belady's Anomaly A. LRU B. FIFO C. MFU D. MRU	B
122	_____ is the example of counting algorithm A.LRU B. FIFO C. Optimal D,MFU	D
123	A process is said to _____ if it is spending most of the time in doing a paging A.Fragmentation B.Segmentation C.Thrashing D.Replicating	C
124	In a disk every track is a collection of _____ A. Cylinders B. Sectors C. Spindle D. Stack	B
125	COW stands for _____ A. Compress of write memory B. Copy overwrite C. Compress overwrites D. Computer of world	B

Prepared By Name: **HOD Signature**

Signature: