Continuous Assessment Test - 1	

QUESTION BANK-CAT 1

UNIT - I

Unit - I / Part - A / 1 Mark/ MCQ				
Sl. No.	Questions	Marks Split-up	K – Level	CO
1.	What is the primary purpose of interrupts in an operating system? a) To execute system calls b)To handle errors c) **To handle asynchronous events** d)To manage hardware resources	1	K2	CO1
2.	In an operating system, what triggers the generation of interrupts? a)User input b)System calls c) **Hardware events** d)Process termination	1	K2	CO1
3.	In a multitasking operating system, how do interrupts contribute to system responsiveness? a)By managing process synchronization b)By facilitating CPU scheduling c)**By handling asynchronous events** d)By allocating memory resources	1	K3	CO1
4.	Which wires facilitate communication between the device controller and DMA controller? a)**DMA request and DMA acknowledge** b)Data and control c)Input and output d)Source and destination	1	K2	CO1
5.	What are the modes of transfer in DMA? a) **Burst Mode, Cycle Stealing Mode, Transparent Mode** b)Parallel Mode, Serial Mode, Sequential Mode c)Simple Mode, Complex Mode, Advanced Mode d)Standard Mode, Custom Mode, Exclusive Mode	1	K2	CO1
6.	A computer system needs to process audio and video files simultaneously while maintaining CPU performance. Which feature would be most beneficial for optimizing system performance? **a)DMA** b)CPU c)Memory-mapped I/O (MMIO) d)Interrupts	1	K3	CO1

7.	Which type of system service is responsible for managing the communication between different processes running on the same computer? a)Memory allocation b)**Interprocess communication** c)Device management d)File management	1	K2	CO1
8.	What is the primary purpose of virtual memory management in an operating system? a)Managing physical memory b)Handling input/output operations c)**Providing an illusion of larger memory than physically available** d)Managing file systems	1	K2	CO1
9.	What type of memory is used to store the bootstrap program? a)Random Access Memory b)Erasable and Programmable Read Only Memory c)Main Memory d)**Electrically Erasable and Programmable Read Only Memory**	1	K1	CO1
10.	Main memory of computer system is known to be a)non volatile b)**volatile** c)reserved d)restricted	1	K1	CO1
11	The DMA controller interrupts the CPU when _____. a) **The entire transfer is finished** b)A data error occurs c)CPU processing exceeds a threshold d)An external interrupt is detected	1	K1	CO1
12	In an operating system, what triggers the generation of interrupts? a)User input b)System calls c) **Hardware events** d)Process termination	1	K2	CO1
13	Warm Boot is also called as ____ a) Sleep b)Shut Down c)**Restart** d)Hibernate	1	K2	CO1
14	Which of the following is not a function of an operating system a)It manages hardware resources. b)It manages and creates processes c)It manages memory d)**It does word processing and image editing.**	1	K2	CO1
15	Which of the following storage system is slower? a)Hard Disk drives b)Non volatile memory c)**Optical disk** d)Cache	1	K1	CO1
16	In symmetric multiprocessing system, all processors are _____ a)**Peers** b)Servers c)Slaves d)Serial	1	K2	CO1
17	Which of the following is wrong about system calls? a)Network connections require the system calls to send and receive data packets.b)If you want to access hardware devices including a printer, scanner, you need a system call c)**System calls are not used to create and manage new processes** d)If you want to read or write a file, you need to make system calls.	1	K1	CO1

18	Which one of the following has the lowest memory access time? a)Cache b)**Registers** c)Main memory d)Solid state device	1	K2	CO1
19	Which is a key structure element of any computer: 1)processor 2)main memory 3)Memory Hierarchy a)Only 1&3 b)1, 2 & 3 c)Only 2 & 3 d)**Only 1 & 2**	1	K2	CO1
20	which of these not belongs to cache memory: a)primary cache b)secondary cache c)**tertiary cache** d)only 1 and 2	1	K2	CO1
21	Define multicore system: a)a processor that has one core is known as multicore processor b)**a processor that has more than one core is known as multicore processor** c)both a processor that has one core is known as multicore processor and a processor that has more than one core is known as multicore processor d)none of the mentioned	1	K3	CO1
22	Which of them not belongs to characteristics of operating system: a)Control over system performance b)File management c)**Help in searching on google** d)All of the mentioned	1	K2	CO1
23	Which of the following options belongs to the operating system? a)Status information b)Communication c)**All of the mentioned** d)File manipulation	1	K3	CO1
24	How many types of system call are there? a)1 Processor b)**2 Processor** c)3 Processor d)4 Processor	1	K1	CO1
25	One that is not a type of memory is a)Cache b)ROM c)RAM d)**Compilers**	1	K1	CO1

Unit - I / Part - B / 2Marks

Sl.No.	Questions	Marks Split-up	K – Level	CO
1.	What is an Operating system?	2	K1	CO1
2.	What is the Kernel?	2	K1	CO1
3.	What is meant by Batch Systems?	2	K1	CO1
4.	What is meant by Multiprogramming?	2	K1	CO1
5.	What is meant by Time-sharing Systems?	2	K1	CO1

6.	What are the Components of a Computer System?	2	K1	CO1
7.	What are the advantages of Multiprogramming?	2	K1	CO1
8.	What is Multiprocessor System?	2	K1	CO1
9.	What are the advantages of multiprocessors?	2	K1	CO1
10.	What is System Programs?	2	K1	CO1
11.	What are System Calls?	2	K1	CO1
12.	What are the five major categories of System Calls?	2	K1	CO1
13.	Difference between microprocessor and micro programming	2	K1	CO1
14.	What is the use of Fork and Exec System Calls?	2	K1	CO1
15.	What are Operating Services?	2	K1	CO1

Unit - I / Part - C / 10 Marks				
Sl. No.	Questions	Marks Split-up	K – Level	CO
1.	Discuss about the evolution of Virtual machines. Also explain how virtualization could be implemented in operating systems.	10	K1	CO1
2.	Sketch the structure of direct memory Access in detail.	10	K1	CO1
3.	Explain the various types of System calls with an example for each.	10	K2	CO1
4.	Discuss about the functionality of system boot with respect to operating system.	10	K1	CO1
5.	Explain the operating system structure and its components.	10	K1	CO1
6.	Define operating system and list out the function and component of operating system.	10	K1	CO1
7.	Differentiate symmetric and asymmetric multiprocessing systems.	10	K2	CO1
8.	In what ways is the modular kernel approach similar to the layered approaches?	10	K1	CO1

9.	Explain the various memory hierarchies with neat block diagram.	10	K2	CO1
10.	Explain briefly System Boot with example.	10	K3	CO1

UNIT - II

Unit - II / Part - A / 1 Mark/ MCQ				
Sl. No.	Questions	Marks Split-up	K – Level	CO
1.	Semaphore can be used for solving _____ a) Wait & Signal b) Deadlock c) **Synchronization** d) Priority	1	K2	CO2
2.	The data section of a process contains _____ a) Address of the next instruction to be executed b) Local Variables c) **Global Variables** d) Return address	1	K2	CO2
3.	The address of the next instruction to be executed by the current process is stored in _____ a) Stack pointer b) Address descriptor c) Register Descriptor d) **Program counter**	1	K1	CO2
4.	We want to keep the CPU as busy as possible, this criteria refers to as _____ a) Throughput b) **CPU utilization** c) Response time d) none of the mentioned	1	K1	CO2
5.	A deadlock exists in the system if and only if the wait-for graph contains a a) **Cycle** b) No cycle c) Square d) All of the mentioned	1	K1	CO3
6.	_____ section is dynamically allocated memory to a process during its run time. a) Stack b) Text c) Data d) **Heap**	1	K1	CO2

7.	Which state of a process defined "The process has finished execution"? a) Running b) **Terminated** c) New d) Ready	1	K1	CO2
8.	What is the interval between the time of submission of a process and the time it is allotted CPU for first time ? a) Load time b) Dispatch time c) **Response time** d) Turnaround time	1	K1	CO2
9.	The list of processes waiting for a particular I/O device is called a a) **device queue** b) ready queue c) job queue d) none of the mentioned	1	K1	CO2
10.	What is interprocess communication? a) communication within the process b) **communication between two process** c) communication between two threads of same process d) none of the mentioned	1	K1	CO2
11	The SJF algorithm can be_____. a)preemptive Only b)nonpreemptive Only c)**either preemptive or nonpreemptive** d)none of the mentioned	1	K1	CO2
12	_____ is sometimes called shortest-remaining-time-first scheduling. a)Round-Robin Scheduling b)**Preemptive SJF scheduling** c)Priority Scheduling d)First-Come, First-Served Scheduling	1	K1	CO2
13	In the One to One model when a thread makes a blocking system call : a)other threads are strictly prohibited from running b)**other threads are allowed to run** c)other threads only from other processes are allowed to run d)none of the mentioned	1	K1	CO2

14	Select the function that replaces the current process image with a new process image. a) **exec()** b) fork () c) wait() d) stop()	1	K2	CO2
15	Which data structure is used to represent the successive creation of processes? a)List b)Stack c)Queue d)**Tree**	1	K1	CO2
16	The I/O waiting queue will be empty, devices will go unused if all processes in a system are _____ a)equal number of CPU bound and I/O bound b)less number of CPU bound and more number of I/O bound c)**CPU bound** d)I/O bound	1	K2	CO2
17	The interval from the time of submission to the time of completion is the _____ a) **Turnaround time** b)Response time c)Waiting Time d)Burst Time	1	K1	CO2
18	When a process terminates, it will be _____ a)Removed from Job queue b)Removed from ready queue c)Removed from I/O queue d)**Removed from all queues**	1	K2	CO2
19	Select the faster IPC mechanism among the following. a) **shared memory** b)message passing c)both shared memory & message passing d)neither message passing nor shared memory	1	K1	CO2
20	Interprocess communication is needed between _____ a)Independent processes b)Random Processes c)Concurrent processes d)**Co-operating processes**	1	K1	CO2

Unit - II / Part - B / 2Marks

Sl.No.	Questions	Marks Split-up	K – Level	CO
1.	Define process	2	K1	CO2
2.	Compare and contrast Single-threaded and multi-threaded process.	2	K1	CO2
3.	What is a thread?	2	K1	CO2
4.	Define CPU Scheduling.	2	K1	CO2
5.	Define: Critical section problem.	2	K1	CO2
6.	What is a semaphore?	2	K1	CO3
7.	Define Deadlock.	2	K1	CO3
8.	What are the methods for handling deadlocks?	2	K1	CO3
9.	What is meant by the state of the process?	2	K1	CO2
10.	Give the condition necessary for a deadlock situation to arise?	2	K1	CO3
11.	Differentiate preemptive and nonpreemptive scheduling.	2	K1	CO2
12.	List out the data fields associated with process control blocks.	2	K1	CO2
13.	What are the types of scheduler?	2	K1	CO2
14.	What does PCB contain?	2	K1	CO2
15.	Define race condition.	2	K1	CO3

Unit - II / Part - C / 10 Marks				
Sl. No.	Questions	Marks Split-up	K – Level	CO
1.	What is a process ?explain different process states.	10	K1	CO2
2.	Explain about process scheduling? Explain different types of schedulers?	10	K1	CO2
3.	Differentiate between process and threads	10	K1	CO2
4.	Define Thread and explain advantages of threads?	10	K1	CO2
5.	Explain the scheduling criteria	10	K1	CO2
6.	Explain FCFS scheduling algorithm with example.	10	K3	CO2
7.	Explain deadlock with an example	10	K3	CO3
8.	Explain about different multithreading models	10	K	CO2

9.	Consider the following five processes, with the length of the CPU burst time given in milliseconds. Consider the First come First serve (FCFS), Non Preemptive and preemptive Shortest Job First(SJF), Round Robin(RR) , Priority scheduling (quantum=10ms) scheduling algorithms. Illustrate the scheduling using Gantt chart.	10	K3	CO2
10.	What is starvation? Explain with example.	10	K1	CO3