



School of Computer Science Engineering and Information Systems

Fall Semester 2024-25

Continuous Assessment Test – 1

SLOT A1+TA1

Programme Name & Branch : B.Tech. IT

Course Name & code: Operating Systems & BITE303L

Class Number (s): VL2024250103311, VL2024250103324, VL2024250103342

Faculty Name (s): Dr. P J Kumar, Dr.M.Priya, Dr.S.MEENATCHI

Exam Duration: 90 Min.

Maximum Marks: 50

Answer All Questions (5*10=50)

Q.No.	Question	Max Marks
1.	Enumerate the different types of system calls that Windows and Linux operating systems typically support. Within the context of the given program, identify various system calls invoked and explain the diverse methods employed for passing parameters from library functions to system call service routines? <pre>int main() { int n,fd; char buff[30]; fd=open("sample.txt",O_RDONLY); printf("The file descriptor of the file is: %d\n",fd); n=read(fd,buff,20); write(1,buff,n); }</pre>	10
2.	Designing an operating system for a particular computing device impose a lot of restrictions such as the available memory and computing capacity of the device. Identify and briefly discuss various operating system structures with pros and cons of each.	10
3.	a) Analyze the different state transitions a process undergoes during its life cycle. Identify the events that might cause a process to change its state from one to the other. b) Identify the contents of a PCB with a neat sketch. Illustrate with a neat sketch the activities taking place during a context switching. Correlate the dispatch latency with the system performance.	5 5
4.	Differentiate Single and multi-threaded process with a real time example. Discuss in brief various thread mapping models with its advantages and disadvantages.	10
5.	Apply SJF (Preemptive) and RR Preemptive (quantum=4ms) scheduling to the below scenario and draw Gantt chart to illustrate process execution. Calculate average waiting time and average turnaround time for each of the scheduling	10

algorithm. Which algorithm gives optimum waiting time and turnaround time?

Process	Arrival Time	Burst time
P1	2	3
P2	0	5
P3	4	6
P4	1	4
P5	3	3