Hall Ticket Number:

Code No.: 16109 N(C)

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) VI-Semester Main Examinations, May-2019

Introduction to Operating Systems

(Open Elective-VI)

Time: **2** hours Max. Marks: **50**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Q.No.	Stem of the question	M	L	CO	PO
	Part-A (5 × 2 = 10 Marks)				
1.	List different types of operating systems.	2	1	1	1,2
2.	With a neat sketch show how the execution changes from supervisory mode to user mode and user mode to supervisory mode.	2	1	1	1,2
3.	Differentiate kernel level thread and user level thread.	2	2	2	1,2
4.	Draw a neat diagram to show context switching.	2	1	2	1,2
5.	Consider the 3 processes, P1, P2 and P3 shown in the table. Draw the gantt chart to schedule the processes using FCFS. Process Arrival time Burst time P1 0 5 P2 1 7 P3 3 4	2	3	2	1,2
	Part-B (5 × 8 = 40 Marks)				
6.a)	Explain the services provided by an operating system in the user's view and system's view.	4	2	1	1,2
b)	Illustrate Distributed system Architecture with a neat sketch.	4	2	1	1,2
7.a)	Explain the use of system call interface with a neat sketch.	4	2	1	1,2
b)	Explain operating system services for process management and memory management.	4	2	1	1,2
8.a)	Explain the role of operating system in multi programming systems and time sharing system.	4	2	1	1,2
b)	Illustrate the execution of Open() system call with a neat sketch.	4	3	1	1,2
9.a)	Explain long term, medium term and short term schedulers.	3	2	2	1,2
b)	What is PCB? Explain the use of PCB in process scheduling.	5	2	2	1,2
10.a)	Draw neat sketches for two types of inter-process communication (IPC). Give an example for IPC.	3	2	2	1,2
b)	Consider the processes P1, P2, P3, P4, P5. Given the arrival times and burst times of the processes calculate the average waiting time and average turnaround times using FCFS algorithm. Process Arrival Time Burst Time. P1 0 20 P2 25 25 P3 30 25 P4 60 15 P5 100 10	5	3	2	1,2

Contd... 2

11.a)	What is a thread? Explain the advantages of Multi-threading models.	3	2	2	1,2
b)	Consider the following set of processes, with the arrival times and the CPU-burst times given in milliseconds Process Arrival Time Burst Time P1 0 5 P2 1 3 P3 2 3 P4 4 1 What is the average waiting time and average turnaround time for these processes with the shortest job first (SJF) algorithm?	5	3	2	1,2
12.a)	Explain the advantages of multiprocessor systems. Write about the working of multiprocessor systems.	4	2	1	1,2
b)	Explain Multi level queue scheduling with a neat sketch.	4	2	2	1,2

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	75%
2	Knowledge on application and analysis (Level-3 & 4)	25%
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable, subject to a maximum of 10%)	-