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Internal Assessment Test 1 – March 2018

Sub:	OPERATING SYSTEMS					Sub Code:	15CS64	Branch:	CSE				
Date:	13/03/2018	Duration:	90 min's	Max Marks:	50	Sem / Sec:	A & B		OBE				
<u>Answer any FIVE FULL Questions</u>											MA RKS	CO	RBT
1 (a)	Why is dual mode operation in OS required? Explain.						[04]		CO1&CO2	L4			
	(b) Explain the salient features of : i) Distributed OS ii) Real time OS.						[06]		CO1&CO2	L4			
2 (a)	Define an OS? Discuss its role with respect to user and system view points.						[06]		CO1&CO2	L2			
	(b) Explain any two types of system calls.						[04]		CO1&CO2	L4			
3 (a)	What is PCB? What are the different states in which a process can be in its life cycle, discuss with the help of state transition diagram?						[05]		CO2 & CO3	L1			
	(b) Is CPU scheduling necessary? Discuss the five different scheduling criteria used in comparing scheduling mechanisms?						[05]		CO2 & CO3	L2			
4 (a)	What are virtual machines? Explain the benefits of creating virtual machines?						[6]		CO1&CO2	L1			
	(b) What are schedulers and different types of schedulers?						[4]		CO2 & CO3	L1			
5 (a)	Define IPC. What are the different methods used for logical implementations of message passing systems?						[05]		CO2 & CO3	L2			
	(b) What is producer consumer problem? Give a solution to the problem using shared memory.						[05]		CO2 & CO3	L1			

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6 (a)	What is a thread and explain its benefits?	[04]	CO2 & CO3	L1
(b)	Explain different threading models used for establishing a relationship between user and kernel thread along with advantages and disadvantages of each model.	[06]	CO2 & CO3	L4
7 (a)	Explain the following OS structures with a neat diagram: Simple Structure iii) Layered structure Microkernel iv) Modules	[10]	CO1	L4
8 (a)	Consider the following set of processes with the length of the CPU burst time given in ms:	[10]	CO2 & CO3	L4

Processes	Arrival Time	Burst Time	Priority
P1	0	10	3
P2	0	1	1
P3	3	2	3
P4	5	1	4
P5	10	5	2

a) Draw the Gantt Charts illustrating the execution of these processes using FCFS, Priority and SJF scheduling.

b) What are the turnaround time of each process and average turnaround time for each of the scheduling algorithms in (a)?

c) What are the waiting time of each process and average waiting time for each of the scheduling algorithms in (a)?

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