United College of Engineering & Management
Department of Computer Science & Engineering
Subject: Operating System (KCS401)
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Year/Sem:2nd year/4th sem
Unit-3

1. Explain multi-threading, illustrate various thread model. [2014-15]
2. What is deadlock Explain the various characteristics of a deadlock in detail. Discuss deadlock prevention schemes. [2017-18]
3. Draw the state diagram of a process and label various transition. Explain the need of process suspension. [2014-15, 2016-17]
4. What is thread? How thread is different from a process? [2018-19]
5. What are the differences between user level thread and kernel supported thread? [2017-18, 2014-15]
6. Discuss the usage of wait-for graph. [2017-18, 2016-17]
7. Define various types of queues with the help of queuing diagram. [2014-15]
8. Draw and explain the Process control block (PCB) with all its components. [2016-17, 2018-19]
9. Discuss the performance criteria for CPU Scheduling. [2018-19]
10. Explain various thread models with their relative advantages and disadvantages. [2015-16]
11. Explain the different methods for dealing with the deadlocks. [2014-15]
12. Explain short term, medium term and long term scheduling. Describe the differences among them. [2016-17]
13. Define the following terms: [2015-16]
    I. Dispatcher
    II. Dispatch Latency
    III. Swapping
    IV. Context Switching
14. Explain Banker's algorithm. Why this is used? [2017-18]
15. Explain the following scheduling algorithm [2016-17]
    I. Multilevel feedback queue scheduling
    II. Multiprocessor Scheduling

16. Consider the following snapshot at time T0 of the system and answer the following questions using Banker's Algorithm [2015-16]

I. Compute the total number of resources of each type.
II. Compute the need matrix
III. Is the system in a Safe state?
IV. If a request from P1 arrives for (0, 4, 2, 0), can the request granted immediately?

	Allocation	Max	Available
	ABCD	ABCD	ABCD
P0	0012	0012	1520
P1	1000	1750	
P2	1354	2356	
P3	0632	0652	
P4	0014	0656	

17. Consider the set of processes given in the table and draw the Gantt chart for preemptive cases and find out the average waiting time and average turnaround time for following scheduling algorithm.(Note: Larger priority number has higher priority) [2017-18]

a. Round Robin
b. SRT
c. Priority

Process ID	Arrival time	Execution Time	Priority
P0	0	5	4
P1	2	4	2
P2	2	2	6
P3	4	4	3

18. List various performance criteria for scheduling algorithms. Five Processes A, B, C, D and E require CPU burst of 3, 5, 2, 5 and 5units respectively. Their arrival times in the system are 0, 1, 3, 9 and 12 respectively. Draw Gantt chart and compute the average turnaround time and average waiting time of these processes for the Shortest Job First (SJF) and Shortest Remaining Time First (SRTF). [2018-19]