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B. Tech. (CO)   Fourth *Semester*
Mid-Semester Examination   *(Mar 2019)*
CO-204 OPERATING SYSTEMS DESIGN
Time: 1.5hrs   *Max. Marks: 30*

Note: *Answer ALL questions.Assume suitable missing data if any.*

Q1.a) Enumerate the various information that are stored in a Process Control Block (PCB).   (2.5)

b) What is a medium-term scheduler? How its functions are different from the long-term scheduler?   (2.5)

Q2. a)What is Convoy Effect in CPU Scheduling? What are the drawbacks of Convey Effect? Explain with the help of an example.   (5)

b) Define Real Time Operating system. What is the difference between Multi-Programming and Multi-Tasking Operating System? Explain with the help of an example.   (5)

Q3.a) Consider four process (jobs) A, B, C, D all arriving at the same time '0'. The Burst times requirement of these jobs are 4,1,8,1 respectively. Calculate the Average waiting time and turn around time using Round Robin scheduling. Assume quantum to be 2 units of time.   (5)

b)What is Spooling? Explain the pros and cons of a Command line interface.   (5)

Q4.Explain why interrupts are not appropriate for implementing synchronization primitives in multiprocessor systems. State the Peterson's solution and its limitations.   (5)

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OR

Describe the necessary conditions for deadlocks to occur. Find if the following system is in safe state using the Banker's algorithm: It has 4 resources R0, R1, R2, R3 and five processes. The available resources are 3, 2, 1, 1 respectively.

Process	Max	Allocation
P0	6 0 1 2	4 0 0 1
P1	2 7 5 0	1 1 0 0
P2	2 3 5 6	1 2 5 4
P3	1 6 5 3	0 6 3 3
P4	1 6 5 6	0 2 1 2

(5)

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