

**Code No: 812AG****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****MCA II Semester Examinations, October/November - 2020****OPERATING SYSTEMS****Time: 2 Hours****Max. Marks: 60**

**Answer any five questions**  
**All questions carry equal marks**

- 1.a) What is Operating system? Explain objectives and functions of OS. [12]  
b) Explain Distributed Systems and Real-Time Systems? [12]
- 2.a) What is system call? What system calls have to be executed by a command interpreter? What is the purpose of system calls? [12]  
b) What is virtual machine? Explain the virtual machine and its implementation. [12]
- 3.a) What is thread? Explain about of user level threads and kernel level threads. [12]  
b) Consider the following set process with the length of CPU burst and Arrival time given in milliseconds. Apply the R.R scheduling algorithm with time quantum 2m/sec and Find the Turnaround time of each processes and Average Waiting time. [12]

Process No. s	CPU burst time	Arrival time
P1	10	0
P2	3	2
P3	15	3
P4	6	10
P5	5	13

4. What is semaphore? How it is used in solving the critical section problems? [12]
5. Consider the following page reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1 how many page faults would occur for the following replacement algorithm assuming three frames which are initially empty.  
a) FIFO replacement b) Optimal replacement. [12]
6. What is virtual memory? Explain the demand paging and its performance. [12]
7. Explain the following  
a) File system Access methods b) File system mounting. [12]
- 8.a) Explain the language based Protection system with example. [12]  
b) Write in detail about dead lock defection algorithm. [12]

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