Code No: 55031 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, February/March - 2016
OPERATING SYSTEMS
(Common to CSE, IT)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1.a) Explain about different types of operating systems
b) What are operating system services? Explain. [8+7]

2.a) Calculate average turnaround time and average waiting time for the following problem by applying round robin scheduling algorithm.(Time slice=2)

PID	BURST TIME	ARRIVAL TIME
P1	4	1
P2	5	2
P3	7	0
P4	1	3

b) Define a process? Explain it's state diagram. [9+6]

3.a) What is reader's writer's problem? Give one solution.
b) Explain the solution of Dinning – Philosopher problem using the concept of monitor. [7+8]

4.a) Differentiate fixed partitioning and dynamic partitioning.
b) What is page fault? Calculate number of page faults on the following reference string by applying **LRU** page replacement algorithm. The reference string is **2,3,4,3,5,6,2,3,5,2,5,4,6,8,3,6,4,5,1,5.** (Consider 3 Frames) [7+8]

5.a) What are different methods for handling deadlock? Explain each approach briefly.
b) How to prevent circular wait? Explain. [8+7]

6.a) Write briefly about directory structures .
b) Explain different file allocation methods. Which allocation method is efficient?

7.a) Write briefly about RAID structures. [7+8]
b) Apply FCFS disk scheduling algorithm on the following sequence of requests and calculate total disk head moment. Disk requests are: 45, 23, 89, 32, 157, 25, 65, 87, 54. Assume initially head is at 70. [7+8]

8.a) What are the goals and principles of protection?
b) How firewalls are used to protect systems and networks? Explain. [7+8]

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