

Code: IT4T2

II B.Tech - II Semester – Regular Examinations - JUNE 2014

**OPERATING SYSTEMS
(INFORMATION TECHNOLOGY)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. Explain the following terms:

- | | |
|------------------------------------|-----|
| a. Operations of operating systems | 2 M |
| b. Symmetric clustering | 3 M |
| c. Multiprogramming systems | 3 M |
| d. Serial processing | 3 M |
| e. Handheld systems | 3 M |

2. a) Give a diagrammatic view of the operating system services and explain it. 7 M

b) Explain different types of process operations. What is context switching? 7 M

3. a) What is a single threaded and multithreaded model? Write down some benefits of multithreading models. 7 M

b) From the below given data, calculate the average waiting time and average turnaround time, if the processing is done in First come first serve (FCFS) basis: 7 M

Process	Burst time	Priority
P1	8	4
P2	6	1
P3	1	2
P4	9	2
P5	3	3

4. What are the requirements of the solution to critical-section problem? Explain the Readers-Writers problem in detail.

14 M

5. a) What is safe state? Explain the necessary condition of deadlock prevention.

8 M

b) Explain deadlock recovery in detail.

6 M

6. a) What are the different partition allocation policies? Explain.

7 M

b) Explain paging in detail.

7 M

7. a) What is Balady's anomaly? Explain thrashing along its cause.

6 M

b) A system uses **Optimal Page Replacement** policy for page replacement. It has 3 page frames. Calculate the page faults for the given sequence of reference string:

4,3,2,1,4,3,5,4,3,2,1,5

8 M

8. a) Explain layered file system structure. 6 M

b) Assuming that the disk head is located initially at 32, find the number of disk moves required with **Shortest Seek Time First** if the disk queue of I/O block requests are:
98, 37, 14, 124, 65, 67 8 M