PG – 513

II Semester M.C.A. Degree Examination, June/July 2015
(CBCS)
COMPUTER SCIENCE
MCA-204T : Operating System

Time : 3 Hours Max. Marks : 70

Instructions : *Part – **A** : Answer **any five** questions.*
*Part – **B** : Answer **any four full** questions.*

PART – A

Answer **any five** questions. **(5x6=30)**

1. Briefly describe the objectives and functions of an operating system.
2. Define system call. Describe the system call related to process management.
3. What is critical section ? Explain Peterson solution to the 2-process critical section problem.
4. Describe the differences among short terms, medium term and long term scheduling.
5. What is resource allocation graph ? How can you ascertain the presence of a deadlock from a graph ?
6. Explain FCFS and SJF scheduling algorithms.
7. Describe shortest seek time first and C-scan disk scheduling algorithms.
8. What is domain protection ? Explain with an example.

PART – B

Answer **any four full** questions : **(4x10=40)**

9. a) What are the characteristics of modern operating system ? Discuss **6**
   b) Differentiate between user-level and kernal-level threads. **4**
10. What is fragmentation ? Discuss how fragmentation is handled by the operating system. **10**

P.T.O.

11. What are semaphores ? Explain how semaphores can be used to solve readers-writers problem. **10**

12. Consider the following snap shot of the system.

Process	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	0	1	0	0	1	1	5	2
P_1	1	0	0	1	7	5			
P_2	1	3	5	2	3	5			
P_3	0	6	3	0	6	5			

Answer the following using Banker's Algorithm.

a) Is the system in a safe state ? If so identify the safe sequence. **4**

b) If a request from process P_1 arrives for (0, 5, 2) can the request be granted immediately ? **3**

c) What would be the new system state after the allocation ? **3**

13. a) Discuss different directory storing mechanisms. **6**

b) How is security handled by the operating system ? **4**

14. Write short notes on :

a) Page replacement algorithms. **4**

b) PCB. **3**

c) Dining Philosophers problem. **3**