Reg. No. : ....

Name : ....

Fourth Semester B.Tech. Degree Examination, July 2015
(2008 Scheme)
Branch : COMPUTER SCIENCE
08.406 – Operating Systems (R)

Time : 3 Hours   Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. What is Spooling ? What are its advantages ?

2. Differentiate real time system and time sharing system.

3. What is the use of access-control lists in file system design ?

4. What are the basic file operations ?

5. What is meant by busy waiting ?

6. Define context switch. When does it occur ?

7. Why are the page size, the number of pages in logical address space and the number of physical page frames all a power of 2 ?

8. What is the criterion for choosing a disk scheduling algorithm ?

9. Differentiate deadlock and starvation.

10. What is confinement problem ?

PART – B

Answer **any one** question from **each** Module.

Module – I

11. a) Outline the concepts behind tree structured and acyclic graph directories.   **12**

     b) Explain the file system structure.   **8**

<div align="center">OR</div>

12. a) Define the essential properties of the following OS :   **10**

      i) Batch

      ii) Distributed

      iii) Clustered

      iv) Network.

     b) Write short notes on external fragmentation and internal fragmentation.   **10**

Module – II

13. a) Consider the following set of process :

Process	Arrival Time	Burst Time	Priority
P1	0	26	2
P2	1	4	1
P3	3	8	3
P4	5	3	4

     (The highest priority is 1. The lowest is 5)

     Draw the Gantt charts and compute the average turn around time for SIF and preemptive priority scheduling.   **10**

     b) Write the solution for producer-consumer problem using semaphore.   **10**

<div align="center">OR</div>

14. a) Explain the structure of page table in detail.   **12**

     b) Write short notes on swapping.   **8**

Module – III

15. Consider the following snapshot of a system :

	Allocation	Max	Available
	A B C D	A B C D	A B C D
P0	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Answer the following questions using Banker's algorithm :

a) What is the content of matrix need ?

b) Is the system in a safe state ?

c) If a request from P1 arrives for (0, 4, 2, 0), can the request be granted immediately ? **20**

OR

16. a) What are the goals of protection ? **6**

b) Explain about the implementation of access matrix. **14**

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