

CSE
TIT

JAYA GROUP OF INSTITUTIONS - THIRUNINRAVUR 602024
4th - B.E.

MODEL EXAMINATION - I

Sub Title : Operating Systems
Sub Code : CS6401
Duration : 180 Minutes

Date : 30.01.15
Branch : CSE
Max marks : 100

Part A - (10 * 2 = 10) Answer all the Questions

1. What are the three objectives of operating system?
2. Mention the advantages in using multiprogramming systems.
3. Define Cache Memory.
4. List out the major categories of system calls.
5. What is meant by Bootstrap Loader?
6. Which are the criteria used for CPU Scheduling?
7. Give the necessary condition for deadlock to occur.
8. Define semaphore.
9. What is meant by Multicore Programming?
10. What are the various states of process?

Part B - (5 * 16 = 80) Answer As per the Choice

11. a) Explain in detail about cache memory principles and its mapping function (16)
Or
b) Discuss in detail about the Operating System Structures. (16)
12. a) Explain in detail about various types of system calls provided by OS (16)
Or
b) Explain the following in detail (8)
(i) System programs (8)
(ii) Operating System operations (8)
13. a) Write in detail about the following (8)
(i) Direct memory Access (8)
(ii) Multiprogrammed Batch Systems (8)
Or
b) (i) Define process. Explain process control block and operation on process. (8)
(ii) What is meant by thread, its benefits and the models of multithreading (8)
14. a) What is Synchronization? Explain how semaphore can be used to deal with n-process critical section problem? (16)
Or
b) Explain in detail about the Classical Problems of Synchronization. (16)

15. a) Briefly explain about CPU scheduling algorithm with example.

(16)

Or

b) Consider the following snapshot of a system:

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

Answer the following questions based on the banker's algorithm:

- (1) Define safety algorithm.
- (2) What is the content of the matrix Need?
- (3) Is the system in a safe state?
- (4) If a request from process P1 arrives for (0,2,0) can the request be granted immediately? (16)