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JAYA GROUP OF INSTITUTIONS - THIRUNINRAVUR

4th SEM - B.E. / B.Tech.

INTERNAL ASSESSMENT - III (MODEL EXAMINATION - III)

Sub. Title : CS6401
Sub. Code : Operating Systems
Duration : 180 minutes

Date : 06.04.2015
Branch : IT
Max. Marks : 100

PART - A ($10 * 2 = 20$) Answer all questions

1. Why is the Operating System viewed as a resource allocator & control program?
2. What is the need for DMA?
3. Compare user threads and kernel threads.
4. What is Mutual Exclusion?
5. What is a pure demand paging?
6. What are overlays?
7. Define spooling.
8. What are the disadvantages of linked allocation?
9. List any four responsibilities of Linux system administrator.
10. List the application areas of Linux virtualization.

PART - B ($5 * 16 = 80$) Answer all the Questions as per the Choice

- 11.(a).(i) Describe in detail about multiprocessor system. (8)
(ii) Discuss about operating system operations. (8)

Or

- 11.(b) (i) Explain in detail about computer system organization with necessary diagrams. (10)
(ii) Write short notes on Direct Memory Access. (6)

- 12(a) (i) Explain in detail about basic concepts of processes. (8)
(ii) Define thread. Explain in detail about multithreading models. (8)

Or

12.(b) (i) Consider the following snapshot of a system

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

Answer the following questions using the Banker's algorithm.

a) What is the content of the matrix need?

b) Is the system in a safe state?

c) If the request from process p1 arrives for (1,4,2,0) can the request be granted immediately?

(16)

13(a) (i) Describe about paging hardware with neat diagrams.

(8)

(ii) Write short notes on the following.

a. Allocation of frames.

(4)

b. Thrashing.

(4)

Or

13.(b) (i) Consider the following page reference string:

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

Calculate the number of page faults would occur for the following page replacement algorithm with frame size of 3.

(i) LRU (ii) FIFO (iii) Optimal

(10)

(ii) Explain the principles of segmentation with examples.

(6)

14. (a) (i) Suppose that a disk drive has 1000 cylinders, numbered 0 to 999. The drive is currently serving a request at cylinder 345 and the head is moving towards track 0. The queue of pending request is 123, 874, 692, 475, 105, 367. What is the total distance (in cylinders) to satisfy these requests using the following disk-scheduling algorithms?

- (i) FCFS
- (ii) SSTF
- (iii) SCAN
- (iv) LOOK

(10)

(ii) Discuss in detail about file access methods.

(6)

Or

14.(b) (i) Explain briefly about any 3 types of directory structures .

(10)

(ii).Explain in detail about free space management.

(6)

15.(a) How to manage domain names for your server and for any virtual domains residing on your system.

(16)

Or

15. (b) (i) What is meant by virtualization? Explain in detail about its basic concepts.

(8)

(ii) Explain in detail installing and configuring VM ware.

(8)