LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

SECOND SEMESTER – APRIL 2010

CS 2811 / 2809 - OPERATING SYSTEMS

Date & Time: 16/04/2010 / 1:00 - 4:00 Dept. No. Max. : 100 Marks

PART – A

Answer all the questions **10X2=20 Marks**

1. Draw a neat diagram of the abstract view of the components of the computer system.
2. Write the functions for ensuring the efficient operation of the system itself
3. Define the term process
4. What is Dispatcher?
5. What is entry section and exit section?
6. What are the methods for handling deadlocks?
7. What is virtual memory?
8. Write down the advantages of paging
9. Give out the common file attributes.
10. What are operations performed on a Directory?

PART-B

Answer all the questions **5X8=40 Marks**

11. a) Write short notes on time sharing systems

(Or)

11. b) List the components of operating system and write any two components in brief.

12. a) Explain different states of process with the help of state diagram.

(Or)

12. b) Write about the scheduling criteria

13.a) What are the fundamental requirements of critical section problem explain with examples.

(Or)

13. b) Consider the following snapshot of a system

Process	allocation		Max		Available	
	R1	R2	R1	R2	R1	R2
P1	1	2	4	2	1	1
1	0	1	1	2		
P3	1	0	1	3		
P4	2	0	3	2		

Answer the following questions using banker's algorithm

a) What is the content of the matrix need?

b) Is the system is in a safe state or unsafe state.

14.a) What are the advantages and disadvantages of Linked allocation?

(Or)

14.b) Consider the following page reference string. 0,1,2,3,0,1,2,3,0,1,2,3,4,5,6,7.How many page fault would occur for the following page replacements algorithms, assuming an allocation of 3 frames? (i) FIFO ii) Optimal

15. a) Explain about the free space management

(Or)

15. b) List the advantages of Linux system

PART – C

Answer any two questions **2X20=40 Marks**

16. a) Write about the various system calls.

b) Consider the following set of processes, with the length of the CPU-burst time in given ms

Process	Burst time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4 and P5 all at time 0.

c) Draw three Gants charts illustrating the execution of these processes using FCFS, SJF, a non preemptive priority (a smaller priority number implies a higher priority)

b. What is the turn around time of each process for each of the scheduling? algorithms?

c. What is the waiting time of each process for each of the scheduling algorithms?

d. Which of the schedules in part a result in the minimal average waiting time (over all process)?

17. a) Write about monitors.

b) Differentiate between segmentation and paging.

18. a) Explain the various disk scheduling techniques

b) Discuss about the process identity in Linux

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