

JAYA ENGINEERING COLLEGE
THIRUNINRAVUR

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Year and Semester : II / IV

Subject Code : CS6401

Subject Name : Operating System

Degree and Branch : B.E – CSE

UNIT-1

16 MARK QUESTIONS:

1. Explain in detail the modern computer system
2. Explain the abstract view of the components of a computer system
3. Explain about interrupts and memory hierarchy.
4. Explain multiprocessor system.
5. Explain operating system structure in detail
6. Explain the following:
 - (i) Communication in client-server systems
 - (ii) IPC in Linux
7. Explain open source operating system call
8. Explain in detail the cache memory and direct memory access.
9. Define the essential properties of the following types of operating systems:
 - (1) Batch
 - (2) Time sharing
 - (3) Real time
 - (4) Time sharing
10. Write about OS generation

UNIT- II

16 MARK QUESTIONS:

1. Explain the various process state
2. Explain the interprocess communication
3. Explain about remote procedure calls
4. Explain about Multi threading models
5. Consider the following set of processes with the length of the CPU burst time given in milliseconds

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,p5 all at time 0.

- a. Draw four Gantt charts illustrating the execution of these processes using FCFS,SJF,non preemptive priority (a smaller priority number implies a higher priority)and RR (quantum=1)scheduling.
- b. What is the turnaround time of each process for each of the scheduling algorithms in part a?
- c. What is the waiting time of each process for each of the scheduling algorithms in part a?
- d. Which of the schedules in part a results in the minimal average waiting time?
- 6.Explain about various scheduling algorithms
- 7.Explain in detail about the critical section problem .

- 8.Explain in detail about semaphores and monitors .
- 9.Explain about deadlock prevention and deadlock avoidance algorithms
10. Consider the following snapshot of a system

Allocation	Max				Available			
	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2
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 question using banker's algorithm

- a)What is the content of the matrix Need?
- b)Is the system in a safe state?
- c)If a request from process p1 arrives for (0,4,2,0) can the request be granted?
- c)If a request from process p1 arrives for (0,4,2,0) can the request be granted immediately?

UNIT-3

16 MARK QUESTIONS:

1. Explain in detail Contiguous Memory Allocation.
2. Explain in detail about segmentation.
- 3.Explain in detail about paging.
- 4.Explain in detail about segmentation with paging.
5. Given memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB(in order), how would each of the first- fit, best- fit, and worst- fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order) ? Which algorithm makes the most efficient use of memory? Explain demand paging.
6. Explain page replacement algorithms.
7. Consider the following page- reference string:
1,2,3,4,,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6
How many page faults would occur for the following replacement algorithms, assuming two, three frames?
Remember that all frames are initially empty, so your first unique pages will all cost one fault each.
 - LRU replacement
 - FIFO replacement
 - Optimal replacement
8. Explain in detail about Thrashing.

UNIT- IV

16 MARK QUESTIONS:

1. Explain in detail about disc scheduling algorithm.
2. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is
86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130.
Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk- scheduling algorithms?

- a. FCFS
- b. SSTF
- c. SCAN
- d. LOOK
- e. C- SCAN
- f. C- LOOK

- 3.Explain in detail about disc management.
- 4.Explain in detail about directory structure.
- 5.Explain in detail about file sharing and protection.
- 6.Explain in detail about file system structure and implementation.
- 7.Explain in detail about allocation methods of disc.
- 8.Explain in detail about free space management.
- 9.Explain in detail about BUS structure.
- 10.Explain in detail about Kernel I/O sub system.

UNIT- V

16 MARK QUESTIONS:

- 1.Explain the basic concepts of the Linux system.
- 2.Explain system administration requirement for Linux system administrator.
- 3.Explain setting up a Linux multifunction server.
- 4.Explain local network services.
- 5.Explain Domain name systems.
- 6.Explain the basic concepts of Virtualization.
- 7.Explain in detail about setting up Xen.
- 8.Explain in detail about VM Ware on Linux Host and Adding Guest OS.
- 9.Explain in detail about Kernel modules in Linux systems.
- 10.Explain in detail about network structure and security in Linux.