

QUESTION BANK

Subject: OPERATING SYSTEMS

YEAR/SEM: II / IV

UNIT – I PROCESSES AND THREADS

PART- A (2 Marks)

1. What is meant by operating systems?
2. How we make a real time projects? Give few examples.
3. Difference between distributed and clustered systems?
4. What is meant by client-server model?
5. When we declare as remote login session.
6. Define FTP vs HTTP.
7. Which systems are called tightly coupled systems.
8. Difference between Batch Systems and Time sharing systems.
9. What is meant by abstract view of system.
10. What is kernel.

PART B

1. Describe the functions of OS and its services. (16)
2. a) Discuss about the use of file descriptor and Access Control Matrix. (8)
b) Explain in detail about Operating System Structures. (8)
3. a) Explain the principle function of Real time operating system and Time Sharing OS (8)
b) List out different types of Clustering methods.
4. a) What are the different types of Systems available. (12)
b) Difference between Hard –Real time systems and Soft-RTS (4)

UNIT_II PROCESS SCHEDULING AND SYNCHRONIZATION

PART- A (2 Marks)

1. What is meant by IPC?
2. what is meant by semaphores?
3. Define Critical section.
4. What are the requirement that must required for Critical section algorithms.
5. What are the constraints in Dining philosopher's algorithm.
6. What is meant by mutual exclusion.
7. Declare the structure for monitors.
8. Declare the structure for Critical section.
9. List out two methods for synchronous and Asynchronous tasks.
10. What is the use of system call to perform I/O? Draw diagram.
11. How we protect CPU using hardware address protection.
12. What is the main difference between WAN and LAN.
13. Cache coherency situation.

PART B

1. Consider the following set of processes, with the length of the CPU – burst time in given ms: (16)

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, a 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 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(over all processes)?

2. Explain briefly about Readers/Writers problem in classical synchronization implement using critical section. (16)

3. a) What is the use of monitors for resource allocation. (8)

b) Discuss about Inter Process Communication. (8)

4.a) What is the advantage of having different time-quantum sizes at different levels in MFQ-Multilevel Feedback Queue based scheduling. (8)

b) A systems uses the following preemptive priority scheduling algorithm(processes with larger priority having higher priority).Processes enter the system with a priority changes at rate α . While running, a process priority changes at rate β .

What's the algorithm that results from $\beta > \alpha > 0$?

What's the algorithm that results from $\alpha < \beta < 0$? JUSTIFY (8)

5.a) Write detailed explanation about Multiprocessor scheduling and Real time scheduling. (8)

b) Define Threads and Explain about user level mode and kernel level mode.(8)

UNIT_III
STORAGE MANAGEMENT
PART- A (2 Marks)

1. What is deadlock?
2. What are the conditions necessary to hold for deadlock occur?
3. JVM.
4. Device drivers and DLM
5. Which buffering capacity referred as automatic buffering.
6. Queuing diagram for process scheduling.
7. What is meant by Threads.& Green threads.
8. How multi threading that improve performance over a single threaded solution.
9. Difference between Preemptive and Non-Preemptive.
10. Define Turnaround time, waiting time, response time and throughput.

PART B

1. Consider the following Snapshot of a system? (16)

Allocation Max Available

A B C D A B C D A B C D

Po 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 the banker's Algorithm: (16)

- a. What is the content of the matrix need?
- b. Is the system is in safe state?
- c. If the request from process P1 arrives for (0,4,2,0) can the request be granted immediately?

2. Given memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB.(in order), how would each of the first-fit, best-fit, worst fit algorithms place processes of 212KB, 417KB, 112KB, and 426KB (in order). Which algorithm makes the most efficient use of memory? (16)

- 3.a) Discuss the methods of Deadlock detection and Recovery. (8)
- b) Explain about Dynamic and Fixed size-equal Vs Varied partition. (8)

- 4.a) Explain about the File system Sharing in RFS? & Failure nodes. (8)
- b) How we made different semantics in File system. (8)

5. Give One example by your own to find out Fragmentation values in either External and Internal.& also Give suggestion about Garbage collection (16)

UNIT-IV
FILE SYSTEMS
PART- A(2 Marks)

1. Define Virtual memory.
2. Page fault rate?
3. Write about Thrashing. Exactly when it occurs with diagram.
4. Effective access time in Pager.
5. Define TLB? With diagram.
6. What is meant by External and Internal Fragmentation?
7. Distinguish between Prepaging and Demand Paging.
8. Which algorithm is most effective for Page replacement Policy.
9. What are the concepts behind in Swapping and Paging.
10. Give two more comparison about segmentation and paging with/without Virtual scheme.

PART B

1. What is meant by Virtual memory. Give some major benefits which are make applicable. (16)
2. Discuss briefly about Paging with Segmentation in 32-bit architecture Intel80x86 Structure analysis. (16)
3. Discuss about
 - a) Swapping (4)
 - b) Paging (4)
 - c) Segmentation (4)
 - d) TLB hit/miss (4)
4. Explain in detail about Page Replacement algorithms (16)
5. Explain in detail about various ways of free space management (16)

UNIT-V
I/O SYSTEMS
PART- A (2 Marks)

1. What is meant by OS platform independent?
2. How Linux Process Control made?
3. In Laptop and Mobile, Which OS is utilized?
4. What is meant by Consistency Semantics?
5. What is DNS?
6. Explain about Winsock?
7. Write about Windows2000 File Protection and security services.
8. In Disk Scheduling algorithm Objective?
9. Define Seek time and Bandwidth.
10. Explain LDAP.

PART B

- 1.a) How we provide Linux memory Management. (8)
b) Three level Paging in LINUX. (8)
2. Explain in detail about Paging, Page fault, Demand Paging and segmentation with memory protection of Windows 2000 OS, (16)
3. a) What are the functions used to allocate memory dynamically by the Kernel (8)
b) Windows Major task which is more user than other OS? (8)
4. Analyse Disk arm movement reduced when/which one is effective for given Queue=87,170,40,150,36,72,66,15
Starting point of current head is 60. (16)
5. a) Explain about Implementation details for File and Directory. (12)
b) What is meant RAID levels. Which level is used for what purpose. (4)