

2020

Time : 3 hours

Full Marks : 80

*Candidates are required to give their answers in
their own words as far as practicable.*

The questions are of equal value.

Answer any five questions.

- 1. What are the objective of Operating System ?**
- 2. What are the advantages of peer to peer system
over client server system ?**
- 3. What is deadlock ? Explain which are the
necessary conditions to achieve a deadlock.**
- 4. Describe the objective of multi-programming.**
- 5. What is a Thread ? What are the differences
between process and thread ?**

QUESTION

6. What is virtual memory ? How is it implemented ?
7. What is Thrashing ? Explain in detail.
8. What are the different Operating Systems ?
Explain in detail.
9. What are the different states of a process ?
Explain in detail.
10. What is the use of Paging in Operating System ?
Explain also demand paging.



2019

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Answer any five questions.

1. (a) What are the three main purposes of Operating System ?
(b) Define the essential properties of the following types of operating system :
 - (i) Real Time Operating System
 - (ii) Time Sharing Operating System
2. (a) What is the difference between pre-emptive and non-preemptive scheduling ?
(b) Explain the basic idea behind Shortest Job First (SJF) Scheduling Algorithm. Explain how scheduling is done in multiprogramming environment.

- 3. (a) Explain the different types of Operating System Services.**
- (b) What is the purpose of System Calls ?**
- 4. (a) What are the functions of File System ?**
- (b) Discuss the linked allocation and index allocation schemes for a file allocation with suitable example.**
- 5. (a) Write the difference between Paging and Segmentation.**
- (b) Under what circumstances do page fault occur ? Describe the action taken by Operating system when page fault occur.**
- 6. Write short notes on the following :**
- (a) Disk structure**
- (b) FCFS disk scheduling**
- (c) Shortest seek time**
- 7. (a) What are the functions of Memory management ?**
- (b) Write the difference between virtual address space and physical address space.**

8. (a) Write the feature of UNIX Operating System.
(b) Explain the File structure of UNIX Operating System.
9. (a) What is Shell Programming ? Explain different I/O statement of Shell Programming.
(b) Explain different conditional statements of UNIX Shell Programming.
10. Write short notes on the following :
(a) Resident Monitor
(b) File Protection
(c) Swapping
(d) Pattern Matching Command in UNIX



2018

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The questions are of equal value.

Answer any five questions.

1. (a) What is operating system ? Discuss the features of operating system.
(b) List out services of operating system.
2. (a) Explain, in detail, long-term, medium-term and short-term scheduling.
(b) Explain, in detail, system calls and system structure.
3. Consider the following set processes with the length of CPU burst in milliseconds :

| Process | Burst time | Priority |
|----------------|-------------------|-----------------|
| p1 | 10 | 3 |
| p2 | 1 | 1 |

| Process | Burst time | Priority |
|----------------|-------------------|-----------------|
| p3 | 2 | 3 |
| p4 | 1 | 4 |
| p5 | 5 | 2 |

Arrival order : p1, p2, p3, p4, p5 at time 0. What is the turnaround time for each process ?

4. (a) Discuss protection and security issue with proper examples.
 (b) What is process life cycle ?
5. (a) What is dead lock ? Describe the methods for handling deadlock.
 (b) Explain the different conditional statement used in shell programming.
6. Why UNIX is such a important operating system ?
 Explain, in brief, about memory management in UNIX system.
7. (a) Discuss paging and segmentation memory management scheme.
 (b) Discuss importance of virtual memory in modern day computer system.

8. (a) What are the type of system calls ? Explain any two.
- (b) What is layered approach to OS design ?
9. (a) Multiprogramming and Distributed system.
- (b) Real-time OS and Time-sharing OS.
10. Write short notes on any four of the following :
- (a) File allocation
 - (b) Virtual memory
 - (c) Paging
 - (d) Swapping
 - (e) Thread
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2017

Time : 3 hours

Full Marks : 80

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The questions are of equal value

Answer any five questions.

1. (a) Define the operating system. Explain time sharing in context of operating system.
(b) Differentiate real time and multiprogramming system.
2. (a) Explain shortest seek time first scheduling with suitable example.
(b) Discuss the multiple processor scheduling.
3. (a) Explain various access and allocation methods in file system.

- (b) How does an operating system provides file protection ? Explain in brief.
4. (a) Explain paging and segmentation in memory management with their advantages and disadvantages.
- (b) Discuss resident monitor and swapping with suitable example.
5. (a) Discuss the services of an operating system in context of user view.
- (b) Explain various component of UNIX editor.
6. (a) Explain the file system of UNIX operating system.
- (b) Discuss the various permission associated with a file with suitable example in UNIX.
7. (a) Explain different conditional statement used in shell programming.
- (b) What do you mean by pattern matching ? Discuss how do UNIX use this to improve its searching process.

8. Write short notes on any four of the following :

- (a) I/O Buffering**
 - (b) File Allocation Table**
 - (c) Multiple Partitions**
 - (d) Multiuser System**
 - (e) File manipulation commands in UNIX**
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2016

Time : 3 hours

Full Marks : 80

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The questions are of equal value.

Answer any five questions.

1. (a) List the five services provided by the operating system. Explain how each provides convenience to the users.
(b) Explain the system structure of the operating system.
2. (a) What are the various process scheduling concepts?
(b) Explain about inter process communication.

3. (a) Explain the various threading issues.
- (b) What is main advantage of multi-programming ? What are the difference between multitasking and multi-programming ?
4. (a) What are the use of job queues, ready queues and device queues ?
- (b) What are the benefits of co-operating process ?
5. (a) What are the major activities of an operating system in regard to secondary storage management ?
- (b) Explain about critical region and monitors.
6. (a) Explain the directory structure of UNIX operating system.
- (b) What are the various layers of file system ? Explain the various file operations in UNIX.
7. (a) Discuss about Kernel I/O sub-system.
- (b) Discuss about looping in shell programming in UNIX.

8. Write short notes on any four of the following :

- (a) Privileged Instructions
 - (b) Process Control Block
 - (c) Independent Process
 - (d) Multiprocessor System
 - (e) Internal Commands in UNIX
 - (f) Schedulers
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2015

Time : 3 hours

Full Marks : 80

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The questions are of equal value.

Answer any five questions.

- ✓ 1. (a) What is an Operating System ? What are the various OS Components ?
(b) What are System Calls in an operating system ? Why is the Operating System viewed as a resource allocator and control program ?
- ✓ 2. (a) Explain about Monitor. What are the drawbacks of Monitors ?
(b) What is Waiting Time and Response Time in CPU scheduling ?
3. (a) Write about the Priority and Round Robin (RR) CPU Scheduling Algorithms.
(b) What is the basic method of Segmentation ?

4. (a) What are Pages and Frames ? What is the basic approach of Page Replacement ?

(b) Explain the concept of Paging. What is the use of Valid-Invalid Bits in Paging ?

5. (a) Explain Dynamic Storage Allocation Problem.

(b) What is Directory ? What are the operations that can be performed on a Directory ?

6. (a) What is a File ? List and explain the various File Attributes.

(b) Explain SCAN Scheduling and C-SCAN Scheduling Algorithms.

7. (a) Discuss briefly about Memory Management in UNIX.

(b) Discuss about the UNIX file system in detail.

8. Write short notes on any four of the following :

(a) Real Time System

(b) Segmentation

(c) Demand Paging

(d) Pattern Matching

(e) External Commands in UNIX

(f) Access Methods

