

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Operating System/Operating System Concepts (3428/3583)

Level: MBA (IT/Post-Graduate)

Semester: Autumn, 2013

Total Marks: 100

Pass Marks: 50

ASSIGNMENT No. 1

(Units 1–4)

Note: All questions are compulsory. Each question carries equal marks.

- Q.1 a) What is meant by operating system? Define it in detail with the help of suitable examples.
b) Also explain the structure of an operating system.
- Q.2 a) Explain the different functions of an operating system in detail.
b) Generally describe the characteristics of an operating system.
- Q.3 a) What is difference between terms "files" and "directories"? Define it in detail with the help of different examples.
b) Explain the concept of "File System Implementation".
- Q.4 Introduce the term "Processes" and also describe the "Classic IPC Problems" in detail.
- Q.5 Write a note on the following topics:
- Paging
 - Swapping
 - Virtual memory
 - Process Scheduling

ASSIGNMENT No. 2

(Units 5–8)

Total Marks: 100

Pass Marks: 50

Note: All questions are compulsory. Each question carries equal marks.

- Q.1 Generally describe the principles of I/O Hardware as well as Principles of I/O software.
- Q.2 What are those operating systems which have become very popular at the time of their releases? Name at least ten of them and also explain three popular operating systems in detail along with their important features.

- Q.3 Differentiate between the terms “Network Operating System” & “Distributed Operating System”. Explain it in detail.
- Q.4 Explain the term “Deadlock”. Also define Deadlock Detection and Deadlock Recovery with the help of different examples.
- Q.5 Write a note the following topics:
- UNIX
 - Terminals
 - Deadlock Prevention
 - Protection Mechanisms

3428/3583 Operating Systems/Operating System Concepts
Credit Hours: 4 (4 + 0)

Recommended Book:

Modern Operating System 3rd Edition by Andrew S. Tanenbaum

Course Outline:

Unit 1: Introduction

What is an Operating System, History of Operating system, Operating System concepts, Operating system Structure?

Unit 2: Process

Introduction to Processes, inter-process Communication, Classic IPC problems, process Scheduling.

Unit 3: Memory Management

Memory Management without Swapping or Paging, Swapping, virtual memory, Page Replacement Algorithms

Unit 4: File Systems

Files, Directories, File System implementation, Security, Protection Mechanisms

Unit 5: Input / Output

Principles of I/O hardware, principles of I/O Software, Disks, Clocks, Terminals

Unit 6: Deadlock

Resources, Deadlocks, Deadlock Detection, Deadlock Recovery, Deadlock Avoidance, Deadlock Prevention, Other Issues

Unit 7: An Overview of Major Operating Systems

O/S2, UNIX, NT, OS/400, Windows

Unit 8: Distributed Operating Systems

Network Operating System, distributed Operating System

Unit 9: Case Studies

UNIX, NT, Windows