

**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 Systems (3439/903)**

**Level: Postgraduate**

**Semester: Spring, 2013**

**Total Marks: 100**

**Pass Marks: 40**

**ASSIGNMENT No. 1**

*Note: All questions carry equal marks.*

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- Q.1 What is meant by operating system? Define it in detail with the help of different examples. Also explain the different functions of an operating system in detail. (20)
  - Q.2 Explain structure and different functions of an operating system. (20)
  - Q.3 Windows XP is a well-known example of operating systems. What are those features which make it very popular among other operating systems? Identify those features and also relate them with some other popular operating systems. (20)
  - Q.4 Introduce the term "Processes" and also describe the "Classic IPC Problems" in detail. (20)
  - Q.5 Write a note on any four of the following topics: (20)
    - i. Paging
    - ii. Swapping
    - iii. Virtual memory
    - iv. Process Scheduling
    - v. Page Replacement Algorithms

**ASSIGNMENT No. 2**

**Total Marks: 100**

**Pass Marks: 40**

*Note: All questions carry equal marks.*

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- Q.1 What is difference between "files" and "directories". Define it in detail with the help of different examples. (20)
  - Q.2 Describe the principles of I/O Hardware and I/O Software. (20)
  - Q.3 Identify operating systems which became very popular at the time of their releases? Name at least five of them and also explain features of any three popular operating systems. (20)
  - Q.4 Define the term "Deadlock". Also explain Deadlock Detection and Deadlock Recovery with the help of different examples. (20)
  - Q.5 Write a note on any four of the following topics: (20)
    - i. Clocks
    - ii. UNIX
    - iii. Security
    - iv. Terminals
    - v. Deadlock Prevention
    - vi. Protection Mechanisms

## **903 Operating Systems**

**Credit Hours: 4 (4 + 0)**

### **Recommended Book:**

**Modern Operating System 3<sup>rd</sup> Edition by Andrew S. Tanenbaum**

### **Course Outlines:**

- Unit No.1      Introduction**  
What is an Operating System, History of Operating System, Operating System Concepts, Operating System Structure?
- Unit No.2      Process**  
Introduction to Processes, Inter-Process Communication, Classic IPC Problems, Process Scheduling
- Unit No.3      Memory Management**  
Memory Management without Swapping or Paging, Swapping, Virtual Memory, Page Replacement Algorithms
- Unit No.4      File Systems**  
Files, Directories, File System Implementation, Security, Protection Mechanisms
- Unit No.5      Input /Output**  
Principles of I/O Hardware, Principles of I/O Software, Disks, Clocks, Terminals
- Unit No.6      Deadlock**  
Resources, Deadlocks, Deadlock Detection, Deadlock Recovery, Deadlock Avoidance, Deadlock Prevention, Other Issues
- Unit No.7      An Overview of Major Operating Systems**  
O/S2, UNIX, NT, OS/400, Windows
- Unit No.8      Distributed Operating Systems**  
Network Operating System, Distributed Operating System
- Unit No.9      Case Studies**  
UNIX, NT, Windows