IQRA UNIVERSITY IU

## FACULTY OF ENGINEERING SCIENCES AND TECHNOLOGY

Department: **Computer Science** Program: **BSCS**

# OPERATING SYSTEM

Announced date: 13-03-2025 Due Date: 20-03-2025 Max Marks:5

| Assignment # 1 | | | |
|---|---|---|---|
| **Mapped CLO** | **Mapped GA** | **Mapped Learning Level** | **SDG** |
| CLO1 | GA 2 (Knowledge for Solving Computing Problems) | C2 (Understand) | 4 & 9 |

## Question # 01 [1 Marks]

***Discuss*** any five services provided by an operating system, and explain how each creates convenience for users. In which cases would it be impossible for user-level programs to provide these services? Explain your answer.

## Question # 02 [1 Marks]

***Describe*** how are interrupts handled in a modern UNIX-like operating system.

## Question # 03 [1 Marks]

***Explain*** the conditions that cause a process to enter an interrupted state and demonstrate effective strategies for managing interrupts to ensure optimal system performance, using relevant examples.

## Question # 04 [1 Marks]

***Discuss*** the purpose and importance of inter-process communication (IPC) in an operating system. Describe shared memory and message passing model (both direct and indirect) of IPC and explain how they manage data exchange between processes. Provide examples of scenarios where each mechanism is most suitable.

## Question # 05 [1 Marks]

***Explain*** the roles of the short-term, mid-term, and long-term schedulers in an operating system. How does each scheduler contribute to process management, and what specific objectives does each aim to achieve? Illustrate with examples how these schedulers work together to balance system performance, resource utilization, and responsiveness.