

FACULTY OF ENGINEERING SCIENCES AND TECHNOLOGY

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Department: **Computer Science**

Program: **BS CS**

OPERATING SYSTEM

Announced date: 21-8-2024

Due Date: 1 Week

Max Marks:5

Assignment # 1				
Mapped CLO	Mapped PLO/GA	Mapped Learning Level	SDG	Knowledge Profile
CLO1	GA1 (Engineering Knowledge)	C2 (Understanding)	4 & 9	WK3 (Engineering Fundamentals)

QUESTION # 01

Explain and identify the role of the Dispatcher in process scheduling. Discuss how dispatch latency impacts the performance of a system. Additionally, explain any two scheduling criteria and describe how optimizing these criteria can improve system performance.

ANSWER

The role of the dispatcher in process scheduling involves allocation of the cpu cycle, context switching from one process to another and initiating and terminating the process. Dispatch latency has a critical impact on the system performance. The more efficient the context switching and cpu cycle allocation is the better the performance is. First come first serve scheduling technique schedule the process which enters the main memory first, it avoids potential resource conflicts and maximize the cpu utilization. Priority scheduling schedule the process with the greatest priority first, certain tasks requires priority execution which are executed first. This make sure that the critical process are catered first.

QUESTION # 02

Explain the key differences between single processing and multiprocessing architectures in computer systems. How does multiprocessing improve system performance compared to single processing? The answer should highlight key architectural differences and performance impacts.

ANSWER

The single processing architecture has a single processor and at a time a single process will be executed. Whereas multiprocessing architecture has more than one processor and these processors individually caters one process at a time. Multiprocessing architecture executes all the process in less amount of time as compared to the single processor. The drawbacks of the single processor architecture is, if we have greater no of processes, the context switching will not be that efficient. Whereas in the multiprocessing architecture the efficient context switching will be done making sure that all the processes are running in parallel with respect to the no of processors.