Graphic Era HILL UNIVERSITY
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University under section 2(f) of UGC Act, 1956

Term Evaluation (Even) Semester Examination March 2025

Roll no...2492525.....

Name of the Course and semester: BCA AI & DS 2nd Semester
Name of the Paper: Operating System
Paper Code: TBD-212
Time: 1.5-hour Maximum Marks: 50

Note:
(i) Answer all the questions by choosing any one of the sub questions
(ii) Each question carries 10 marks.
(iii) Please specify COs against each question.

Q1. (10 Marks)

a. Define the term operating System. Also explain its layered architecture with a diagram. (CO1/CO2)

OR

b. Differentiate between Multiprogramming, Time Sharing & Parallel processing operating system. (CO1/CO2)

Q2. (10 Marks)

a. Consider the following scenario of processes in a system:

Process	Arrival Time	Execution time
P1	0	5
P2	1	3
P3	2	4
P4	4	1

Draw a Gantt chart for the execution of the processes, showing their start time and end time using preemptive SJF CPU scheduling algorithm. Calculate turnaround time, waiting time and response time for each process, and average turnaround time, and average waiting time for the system. (CO1/CO2)

OR

b. Discuss the various CPU Scheduling criteria. (CO1/CO2)

Q3. (10 Marks)

a. Discuss the term system call. What are its various types. Differentiate between a system call and a library function in operating system. (CO1/CO2)

OR

b. Consider the following scenario of processes in a system:

Process	Arrival Time	Execution Time
P1	0	4
P2	1	3
P3	2	1
P4	3	2
P5	4	5

Draw a Gantt chart for the execution of the processes, showing their start time and end time using FCFS algorithm. Calculate turnaround time, and waiting time for each process, and average turnaround time, and average waiting time for the system. (CO1/CO2)

Q4. (10 Marks)

a. Consider the following scenario of processes in a system:

Process	Arrival Time	Execution Time
P1	0	3

P2	1	4
P3	2	4
P4	3	6

Draw a Gantt chart for the execution of the processes, showing their start time and end time using Round Robin algorithm with time quantum two. Calculate turnaround time, waiting time and response time for each process, and average turnaround time, average response time, and average waiting time for the system. (CO1/CO2)

OR

b. Discuss Multi-level Feedback queue algorithm with an example. (CO1/CO2)

Q5. (10 Marks)

a. What is CPU scheduling. What are different algorithms used in scheduling processes. (CO1/CO2)

OR

b. Discuss the algorithm used in SVR3 UNIX. (CO1/CO2)