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Roll No.

TBC-203/TBI-205

**B. C. A./B. SC. (IT)
(SECOND SEMESTER)
MID SEMESTER**

**EXAMINATION, 2021-22
OPERATING SYSTEM**

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each sub-question carries 10 marks.

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

OR

- (b) Differentiate between Multiprogramming, Time sharing and Parallel processing operating system. (CO1/CO2)

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2. (a) Consider the following scenario of processes in a system : (CO1/CO2)

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, normalized turnaround time and waiting time for each process and average turnaround time, average normalized turnaround and average waiting time for the system. (CO1/CO2)

OR

- (b) Define the term schedulers in operating system. Explain its various types.

(CO1/CO2)

3. (a) Briefly explain process control block with a diagram. Explain system call and library function in operating system. (CO1/CO2)

OR

- (b) Explain the process of context switching with a neat diagram. (CO1/CO2)
4. (a) Write short notes on any *two* of the following : (CO1/CO2)
- (i) Dispatcher
 - (ii) Thread
 - (iii) Process concept

OR

- (b) Discuss various CPU scheduling criteria. (CO1/CO2)
5. (a) Consider the following scenario of processes in a system : (CO1/CO2)

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

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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.

OR

(b) Define the term scheduling. Explain the various types of process scheduling.

(CO1/CO2)