

4th Semester B.Tech. Mid Term Examination 2021-22

OPERATING SYSTEMS(BTCS-T-OE-036)

Duration: 01:30

Full Marks: 25

1 Answer All

- a Differentiate between multiprogramming and timesharing systems. 1
- b Differentiate between Application software and system software. 1
- c What is the role of bootstrap loader in the booting process? 1
- d What is the difference between preemptive and non-preemptive scheduling? 1
- e Differentiate between long-term and short-term Scheduler. 1
- f Why is it important for the scheduler to distinguish I/O-bound programs from CPU-bound programs? 1

2 Answer All

- a Discuss about the operating system's dual mode of operation. 3
- b Discuss about the distributed operating system. 3
- c Explain with a suitable diagram how a process changes its state. 3

3 Answer any One

- a Explain any five major services provided by an operating system. 5
- b Write short notes on- 5
 - (i) Batch Operating System
 - (ii) Real-Time Operating System

4 Answer any One

- a Consider the following set of processes, with CPU burst time is given in milliseconds. Draw the Gantt Charts and determine the average waiting time and turnaround time separately using SJF, SRTF, and RR scheduling algorithms. Time slice for RR is 2ms. 5

Process	CPU Burst Time	Arrival Time
P1	4	0
P2	2	2
P3	4	3
P4	1	5
P5	3	6

- b Consider the following set of processes with their CPU burst time, arrival time given in milliseconds and priority. 5

Process	CPU Burst Time	Arrival Time	Priority
P1	3	0	1
P2	2	1	4
P3	4	3	2
P4	5	4	4
P5	3	5	1

Draw three Gantt charts for the execution of the processes using SRTF, RR (time quantum = 2), and Preemptive Priority scheduling. Compute the average waiting time and turnaround time for all processes separately on the execution of the three algorithms.