

GUJARAT TECHNOLOGICAL UNIVERSITY**B.VOC- SEMESTER-I EXAMINATION – WINTER 2024****Subject Code:21110204****Date:30-12-2024****Subject Name: Operating System****Time:10:30 AM TO 12:30 PM****Total Marks:50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

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|------------|--|--------------|
| Q.1 | (a) List and explain Functions of Operating Systems. | 05 |
| | (b) What is a Scheduler? Explain various types of scheduler with diagrams. | 05 |
| Q.2 | (a) Explain Inter Process Communication. | 05 |
| | (b) Consider the following set of processes with the length of the CPU burst time given in milliseconds. | 05 |

Process	Arrival Time	Burst Time
P1	0	8
P2	1	1
P3	2	3
P4	3	2
P5	4	6

Draw the Gantt chart illustrating the execution of these processes using FCFS scheduling. Calculate turn-around time and waiting time for each process.

OR

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| (b) | Apply Round Robin Scheduling algorithm on given processes with Time Quanta 2. | 05 |
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Process	Arrival Time	Burst Time
P1	0	5
P2	1	4
P3	2	2
P4	4	1

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| Q.3 | (a) Explain swapping in detail. | 05 |
| | (b) A process references pages in the following order:
1, 8, 9, 1, 2, 6, 7, 8, 7, 3, 4, 5, 3, 4, 4, 2, 4, 9, 5
Use the FIFO and LRU algorithm to find out the number of page faults for this reference string using 3 page frames. | 05 |

OR

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| Q.3 | (a) Explain concept of Demand Paging with page fault in memory management. | 05 |
| | (b) Apply and explain the concept of Demand Paging with page fault in memory management using given example.
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. | 05 |

- Q.4 (a)** What is Directory? Explain various Directory operations. **05**
(b) List and explain disk scheduling algorithms with examples. **05**
- OR**
- Q.4 (a)** Explain different types of file access methods. **05**
(b) What is Fragmentation? Explain Difference between Internal and External Fragmentation **05**
- Q.5 (a)** Draw and explain Linux Architecture in detail. **05**
(b) Explain antivirus as the utility software. **05**
- OR**
- Q.5 (a)** What is a shell in Linux? Explain the following commands: (i) finger (ii) grep (iii) chmod (iv) head (v) cut (vi) wc **05**
(b) Explain Disk Cleanup and Backup in detail. **05**
