

GUJARAT TECHNOLOGICAL UNIVERSITY**B.VOC- SEMESTER-I EXAMINATION – WINTER 2025****Subject Code:21110204****Date:03-12-2025****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) Differentiate Compiler, Interpreter and Assembler. | 05 |
| Q.2 | (a) Define process. Draw and explain the process state model. | 05 |
| | (b) Apply Round Robin Scheduling algorithm on given processes with Time Quanta 2. | 05 |

Process	Arrival Time	Burst Time
P1	0	5
P2	1	4
P3	2	2
P4	4	1

OR

- (b) Apply Shortest Job First (SJF) Scheduling algorithm on following processes. Draw a Gantt chart and find the average waiting time. **05**

Process	Arrival Time	Burst Time
P1	0	7
P2	1	3
P3	2	2
P4	3	10
P5	4	8

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

OR

- Q.3** (a) 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**
- (b) Differentiate Internal and External Fragmentation. **05**

- Q.4** (a) What is a file? Explain various file attributes. **05**
(b) Apply FCFS Disk Scheduling algorithm on following requests. There are a total 100 cylinders and the head is currently on cylinder number 22, 40, 98, 83, 60, 12, 62, 31 **05**

OR

- Q.4** (a) Explain different types of file access methods. **05**
(b) Apply FCFS Disk Scheduling algorithm on following requests. There are a total 100 cylinders and the head is currently on cylinder number 25, 55, 90, 15, 60, 5, 65, 30 **05**

- Q.5** (a) Explain following UNIX Commands: **05**
pwd, cd, mkdir
(b) Explain antivirus as the utility software. **05**

OR

- Q.5** (a) Explain any two mobile operating systems. **05**
(b) Explain Disk Cleanup in details. **05**
