

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2140702

Date:20/05/2019

Subject Name: Operating System

Time:02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks

- Q-1**
- | | | |
|-----|---|---|
| (A) | What is Operating System? explain any one types of operating system | 3 |
| (B) | Explain different states of a process with a suitable diagram | 4 |
| (C) | Explain the microkernel system architecture in detail. | 7 |

- Q-2**
- | | | |
|-----|--|---|
| (A) | Explain the features of time sharing system | 3 |
| (B) | Explain process model in brief. | 4 |
| (C) | What is thread? Explain thread Structure? And explain any one type of thread in details. | 7 |

OR

- | | | |
|-----|--|---|
| (C) | Explain Round Robin algorithm with proper example. | 7 |
|-----|--|---|

- Q-3**
- | | | |
|-----|---|---|
| (A) | Explain context switching. | 3 |
| (B) | What is priority inversion problem in inter process communication? How to solve it? | 4 |
| (C) | Explain SJF process scheduling algorithm with example | 7 |

OR

- Q-3**
- | | | |
|-----|---|---|
| (A) | Define the following term.
1) Critical Section 2) Waiting Time 3) Race condition | 3 |
| (B) | Briefly describe SCAN | 4 |
| (C) | How does a parent process create a child process? How does a parent process create an ordinary pipe (anonymous pipe) for communicating with child process? Write the steps. | 7 |

- Q-4**
- | | | |
|-----|---|---|
| (A) | What are system calls? What is application programming interface? | 3 |
| (B) | Which scheduling algorithm results in starvation? | 4 |
| (C) | Explain the use of Banker's algorithm for multiple resources for deadlock avoidance with illustration | 7 |

OR

- Q-4**
- | | | |
|-----|--|---|
| (A) | Which three are Page Replacement Algorithms? Discuss it in terms of page faults. | 3 |
| (B) | What is I-node? Explain in detail. | 4 |
| (C) | Which are the necessary conditions for Deadlock? Explain Deadlock recovery in brief. | 7 |

- Q-5**
- | | | |
|-----|---|---|
| (A) | Write a Shell Script to find largest among the 3 given numbers. | 3 |
| (B) | What is RAID? Explain in brief | 4 |
| (C) | Explain the following commands in UNIX:
suid, wall, man, finger, ls, cat, ps | 7 |

OR

- Q-5**
- | | | |
|-----|---|---|
| (A) | What is called segmentation? How it differs from paging? | 3 |
| (B) | What is the access control list? Explain in brief. | 4 |
| (C) | What is Paging? What is Page Table? Explain the conversion of Virtual Address to Physical Address in Paging with example. | 7 |