PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2022-23 Examination

Semester: 3/4   **Date: 20/03/2023**
Subject Code: 203105203   **Time: 02:00 pm to 04:30 pm**
Subject Name: Operating System   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 **Objective Type Questions** - (All are compulsory)   **(15)**
1. The operating system is the interface between _____ and_____.
2. A _____ system call is used to create a child process.
3. A process running in background is called___.
4. Define: Race Condition and critical section.
5. Explain GREP command of Linux OS.
6. What is TLB?
7. Differentiate fragmentation and segmentation.
8. FAT stands for _____.
9. How files are protected in UNIX/LINUX file system?
10. Logical addresses are generated by CPU. (True / False)
11. Page size is always in power of 2. (True / False)
12. _____ is called lightweight process.
13. Define: Starvation
14. Give the name of operation that can be performed on semaphore.
15. Give the name of technique used for overcoming external fragmentation.

Q.2 **Answer the following questions. (Attempt any three)**   **(15)**
A) What do you mean by scheduling? Explain types of scheduler and SJF scheduling algorithm.
B) What is Operating System? Discuss role/functions of OS as a resource manager.
C) What is Belady's anomaly? Explain with suitable example.
D) Define and differentiate Process and thread.

Q.3 A) Explain process state transition with neat diagram.   **(07)**
B) What is Paging? Explain paging mechanism in MMU with example.   **(08)**

OR

B) Why we need page replacement? Consider the page reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, with 4 page frame. Find number of page fault using LRU page replacement algorithm.   **(08)**

Q.4 A) What is deadlock? Describe in brief necessary conditions that should hold for deadlock to occur.   **(07)**

OR

A) What do you mean by mutual exclusion? Explain Peterson's solution for mutual exclusion problem.   **(07)**
B) Differentiate contiguous and linked file allocation methods.   **(08)**