# Written Assignment#4

**Instructions:**

1. Please write your name and roll clearly.
2. Write questions along with question numbers.
3. Hand written assignment will be given more marks than printed.
4. A reference link is given with some questions to take support.
5. Answer is normally present in given link but careful reading is required.
6. Total marks of this assignment is 20. Answer questions according to mentioned marks.

# Question#1: [4 marks]

What are the differences between user-level and kernel-level threads? Under what circumstances is one type better than the other? What is the essential cause of the difference in cost between a context switch for kernel-level threads and a switch that occurs between user-level threads?

# Question#2: [4 marks]

**Link used:”** [**https://www.geeksforgeeks.org/starvation-and-aging-in-operating-systems/**](https://www.geeksforgeeks.org/starvation-and-aging-in-operating-systems/)**”**

Read the starvation and aging in OS from the given link. Briefly explain the starvation problem and how aging can solve this problem in your words.

# Question#3: [2 marks]

From the given link in Question#2, explain the difference between Starvation and Deadlock.

# Question#4: [6 marks]

**Link used:**” <https://www.baeldung.com/cs/race-conditions>”

Study the race condition in multithreaded programing from the given link. Briefly explain in your words Race condition, Check-then-act pattern, and Data race?

# Question#5: [2 marks]

What is a trap instruction? Explain its use in operating systems.

# Question#6 [2 marks]

What is the purpose of a system call in an operating system**?**