



COMSATS University Islamabad

Attock Campus

Department of Mathematics

Assignment # 01

Class: BSM-VI

Subject: Real Analysis II

Instructor: Dr. Atiq ur Rehman

Due Date: 7-4-2023 (11:00AM)

Course Code: MTH322

Marks: 10

Note: Please follow the due date & time strictly.

Write a brief response to the following questions.

1. Suppose f is positive and Riemann integrable on $[a, b]$. Prove that $F(x) = \int_a^x f(t)dt$ is an increasing function for $x \in [a, b]$.
2. Prove that $G(t) = \int_1^t 2x \sin x^2 dx$ is bounded for $t > 1$.
3. For which value of m , the integral $\int_0^1 \frac{1}{x^{m^2}} dx$ is convergent.

Academic Honesty Requirements:

You are encouraged to work with others in the completion of assignments, but it doesn't include copying. Academic integrity is an ethical code, whereby the student guarantees that all work submitted is the student's own work. For this purpose, please include the following statement with every submitted assignment on title page:

I worked on this homework myself, and I understand it well.