AMTL 100 (CALCULUS)
Quiz 3

Date: 12/12/2024   Total Marks: 15   Time: 30 mins

1. Find the values of p for which the following improper integral converges.   [5]

$$\int_1^3 \frac{1}{x(\ln x)^p} \, dx$$

2. Find the arc length of the curve given by   [5]

$$y = \frac{x^3}{12} + \frac{1}{x}, \quad 1 \le x \le 4.$$

3. The region bounded by the curve $y = \sqrt{x}$, the x-axis, and the line $x = 4$ is revolved about the y-axis to generate a solid. Find the volume of the solid. [5]