MIDTERM TEST **MATHEMATICS 1001-004** MARCH 8TH, 2023

Name	MUN Number

[15] 1. Evaluate each of the following integrals.

(a) $\displaystyle \int x^2 \cos(x)\, dx$

(b) $\displaystyle \int x \cos(x^2)\, dx$

(c) $\displaystyle \int \frac{\cos(x) + 1}{\cos^2(x)}\, dx$

[25]   2. Evaluate **FIVE** of the following integrals. (If you evaluate all six, only your best five will count towards your mark.)

(a) $\displaystyle\int \frac{1}{x \ln(x)\sqrt{\ln^2(x) - 4}}\, dx$

(b) $\displaystyle\int x \left(\frac{1}{3}x + 5\right)^7 dx$

(c) $\displaystyle\int \frac{18x^3 - 15x^2 + 2}{3x - 1}\, dx$

(d) $\displaystyle\int e^{\sqrt{x}}\,dx$

(e) $\displaystyle\int \frac{\cosh(3x)}{\sinh^2(3x)+25}\,dx$

(f) $\displaystyle\int \frac{1}{\sqrt{27+12x-4x^2}}\,dx$

[40]