Math 221 EXAM 1

June 16, 2017

Student's Name:

Instructor's Name:

Q.N.	1	2	3	4	5	Total
Points						

Show all work in detail for full credit. No books and calculators are permitted. Use the back page as a sketch paper.

1. Use substitution to find the antiderivative.

(a) (6 points) $\int \frac{x^2}{(x^3-3)^3}\,dx$

(b) (6 points) $\int t\,sin(t^2)\,cos(t^2)dt$

2. Evaluate following integrals using integrating by parts.

(a) (6 points) $\int_0^1 xe^{-x}\,dx$

(b) (6 points) $\int x^2\,sinxdx$

3. Evaluate following trigonometric integrals.

(a) (6 points) $\int cos^3x\, sin^2x\, dx$

(b) (6 points) $\int_0^{2\pi} sin(2x)\, cos(x) dx$

4.(12 points). Evaluate following integral using trigonometric substitution: $\int \frac{\sqrt{x^2-25}}{x} dx$

5. Evaluate following integrals:

(a) (6 points). Use method of partial fraction: $\int \frac{3x^2}{(x-1)(x^2+x+1)}dx$

(b) (6 points). $\int_0^2 \frac{dx}{\sqrt{4-x^2}}$. Does this improper integral converge or diverge?