

# Calculus II, Exam II, Fall 2013

Name: \_\_\_\_\_

Student signature: \_\_\_\_\_

**Show all your work and give reasons for your answers.**

**Good luck!**

## **Part I**

Each problem in part I is worth **8** points; You must show your work to **justify your answers!!**

(1)  $\int (x^3 + x)\sqrt{x} \, dx$

(2)  $\int_0^1 2x^7 e^{x^8+1} \, dx$

(3)  $\int x \sin(x) \, dx$

(4) Use a Riemann sum with  $n = 3$  terms and the midpoint rule to approximate  $\int_0^{\frac{1}{10}} \sin(x^2) \, dx$ . (You do not need to simplify the sum.)

(5) If  $G(x) = \int_1^x \sin(t^3 + t) \, dt$ , find  $G'(x)$ .

(6) If  $\int_1^3 f(x) \, dx = 5$  and  $\int_3^7 f(x) \, dx = -12$ , find  $\int_1^7 f(x) \, dx$ .

(7)  $\int \cos^3(x) \sin^5(x) \, dx$

(8)  $\int_2^3 \frac{1}{x[\ln(x)]^5} \, dx$

## Part II

(1) [**12 points**]  $\int_0^1 \arctan(x) \, dx$

(2) [**12 points**]  $\int x^3 \sin(x^2) \, dx$

(3) [12 points]  $\int e^{\sqrt{x}} dx$