Calculus II, Exam I, Spring 2007

Name:_____

Student signature:_____

Show all your work and give reasons for your answers. Good luck!

Part I All problems in part I are worth 9 points each.

(1) Evaluate $\int \frac{x^4 + \sqrt{x}}{x}\,dx$.

(2) Evaluate $\int x^2 \sin(3x^3 + 5)\,dx$.

(3) Evaluate $\int_1^2 \ln(x)\,dx$.

(4) Evaluate $\int \frac{1}{x^2-1}\,dx$.

(5) Evaluate $\int \sin^6(x) \cos^3(x)\,dx$.

(6) Evaluate $\int x(2x+1)^{50}\,dx$.

(7) If $F(x) = \int_1^x \sqrt{t^3 + t^2 + t + 1}\,dt$, find $F'(x)$.

(8) Approximate $\int_1^2 e^x \, dx$ by a Riemann sum with n=4 terms and using the midpoint rule. Note: you do not need to compute and add the terms in the sum.

Part II. All problems in part II are worth 10 points.

(9) Evaluate $\int \frac{1}{x^3+2x^2+x} \, dx$.

(10) Evaluate $\int e^{\sqrt{x}}\, dx$.

(11) Evaluate $\int \sin^4(x)\, dx$.

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