Feng Chia University 111-2 Purdue Calculus II Midterm I-Exercise

(Time：80 minutes. Pages: Two Pages, Total 100 points)

Name：_____ SID：_____

A、Filling blanks：(Total 40% ,4 points each. Answer should be in the corresponding box.)

(A)	(B)	(C)
(D)	(E)	(F)
(G)	(H)	(I)
(J)	GRADES:	

1. Evaluate $\int x^2 \ln x \, dx =$ (A) $+C$

2. Evaluate $\int sin^3 x cos^2 x \, dx =$ (B) $+C$

3. Evaluate $\int \sqrt{tanx}\, sec^4 x dx =$ (C) $+C$.

4. Evaluate $\int tan^3 x \, sec^3 x dx =$ (D) $+C$.

5. Evaluate $\int \frac{\sec x}{tan^2 x} dx =$ (E) $+C$.

6. Evaluate $\int sin2x \cos 5x dx =$ (F) $+C$.

7. Evaluate $\int sin3x \sin 7x dx =$ (G) $+C$.

8 . Evaluate $\int \frac{1}{(x^2+1)^{3/2}} dx =$ (H) $+C$.

9. Evaluate $\int \frac{1}{(1-x^2)^{3/2}} dx =$ (I) $+C$.

10. Evaluate $\int \frac{x-4}{x^2-5x+6} dx =$ (J) $+C$.

B、Computations : (Total 60%, Show all your work, NO DETAIL WORK, NO POINTS!!)

1. (8%)Find the volume of the solid form by revolving the region bounded by $y = \sqrt{x}$, and $y = x^2$ about x-axis.	2. (8%) Find the volume of the solid form by revolving the region bounded by $y = x$, and $y = x^2$ about y-axis.
3. (8%)Evaluate $\int e^{2x} \sin x \, dx$.	4. (8%) Show that $sinh^{-1}x = \ln(x + \sqrt{x^2 + 1})$, $x \in R$.

5. (7%)Evaluate $\int_0^1 \arcsin x \, dx$.

6. (7%)Evaluate $\int \frac{x}{(3-2x-x^2)^{1/2}} dx$.

7. (7%)Evaluate $\int \frac{1}{x^2\sqrt{9-x^2}} dx$.

8. (7%)Evaluate $\int \frac{x^2-3x+11}{(x-2)(x+1)^2} dx$.