Course's Name :Calculus II	**Palestine Technical University -Kadoorie**	***Instructor's Name: ………………………***
Course'sNumber:		***Student'sName: ……………………………***
Exam's Period : 1 hour		***Student'sNumber: ………………………...***
Questions' Number :3		***Section'sNumber: …………………………***
Total Mark :30		*Exam's Date :8 /3/2017*
Pages' Number :4	**first*Exam*** ***SecondSemester 2016/2017***	*Form(B)*

Question one (12 points)

Choose the correct answer in the following statements, Then complete the table (use capital letters)

1	2	3	4	5	6	7	8

1) If $y = 3^{\sin x}, then\ \frac{dy}{dx}\ when\ x = \pi\ \ is$

A) 1 B) 0 C) $\ln 3$ D) $-\ln 3$

2) The solution of $\ln x + \ln(x+1) = 0\ \ is$

A) $.-1-\sqrt{2}$ B) $-1+\sqrt{2}$ C) $-1 \pm \sqrt{2}$ D) $1+\sqrt{2}$

3) $\sec(tan^{-1}\frac{x}{2})$

A) $\frac{\sqrt{x^2+4}}{2}$ B) $\sqrt{x^2+4}$ C) $\frac{\sqrt{4+x^2}}{x}$ D) $\frac{x}{\sqrt{4+x^2}}$

4) If $\cosh x = \frac{5}{4}, x < 0\ then \sinh x =$

A) $\frac{3}{5}$ B) $\frac{4}{5}$ C) $\frac{-3}{5}$ D) $\frac{-3}{4}$

5) $f(x) = \cosh(\log_2 x)$, $then\ f'(x)$=

A) $\frac{sinh(\log_2 x\ \ )}{\text{xln } 2}$ B) $sinh(\log_2 x\ \ )$ C) $\frac{-\ sinh(\log_2 x\ \ )}{\text{xln } 2}$ D) $\frac{sinh(\log_2 x\ \ )}{\text{x}}$

6) If f is one − to − one function and $f(5) = 1, f(3) = 5, f'(5) = 3, f'(3) = 4, then\ (f^{-1})'(5) =$

A) $\frac{1}{3}$ B) 4 C) 3 D) $\frac{1}{4}$

7) If $y = (x)^{lnx}\ then\ \frac{dy}{dx} =$

A) $\ln x\,(x)^{(\ln x)-1}$ B) $(\ln x)^{x-1}$ C) $(x)^{\ln x}(\frac{2\ln x}{x})$ D) $(x)^{\ln x}(\frac{1}{\ln x} + \ln(\ln x))$

8) $\int_0^1 \frac{1}{\sqrt{4-x^2}}dx$

A) $\frac{\pi}{6}$ B) $\frac{-\pi}{6}$ C) $\frac{\pi}{3}$ D) $\frac{\pi}{12}$

Question two (11 points)

a. Consider the area enclosed between the curve $y = 2x - x^2$ and the $x - axis$, find the volume of the solid generated by revolving this area about $x = 2$

b. Find the length of the curve

$$x = \int_0^y \sqrt{(\sec\ t)^4 - 1}\ dt\ , \frac{-\pi}{4} \leq x \leq \frac{\pi}{4}$$

Question three (7 points)

Evaluate the following definite integrals.

a. $\int_{1}^{e} \frac{dx}{x[(\ln x)^2+1]}$

b. $\int_{0}^{\ln 2} 2\, e^{x} \sinh x\, dx$