Prince Sultan University

Deanship of Educational Services

Department of Mathematics and General Sciences

COURSE DETAILS:

Calculus II	MATH 113	MAJOR EXAM II
Semester:	Spring Semester --Term 191	
Date:	Nov. 17, 2019	
Time Allowed:	90 minutes	

STUDENT DETAILS:

Student Name:			
Student ID Number:			
Section #:		Attendance Serial #:	
Instructor's Name:			

INSTRUCTIONS:

- You may use a scientific calculator that does not have programming or graphing capabilities. NO borrowing calculators.
- NO talking or looking around during the examination.
- NO mobile phones. If your mobile is seen or heard, your exam will be taken immediately.
- Show all your work and be organized.
- You may use the back of the pages for extra space, but be sure to indicate that on the page with the problem.

GRADING:

	Page 1	Page 2	Page 3	Page 4	Page 5	Total	Total
Questions							
Marks	**11**	**7**	**6**	**6**	**10**	**40**	**20**

Q1. [5 Marks] Evaluate $\int (x^2 + 2x + 7)e^x \, dx$

Q2. [6 Marks] Evaluate $\int \frac{\sqrt{1-x^2}}{x} \, dx$

Q3. [7 Marks] Determine whether $\int_2^{+\infty} \frac{1}{x^2+2x-3}\,dx$ converges or diverges.

Q4. [6 Marks] Evaluate $\int \frac{\sqrt[3]{x}+1}{\sqrt[3]{x}-1}\ dx$

Q5. [6 Marks] Evaluate $\int \frac{\cos^3 x}{\cos 2x}\, dx$.

Q6 [4 Marks] Determine whether the following sequences is convergent or divergent. Find the limit of the convergent sequence.

1. $\left\{\frac{3n}{1+9n}\right\}$

2. $\{ln(n^2+1) - \ln(2n^2)\}$

Q7. [6 Marks] Find the exact length to the curve: $y = ln(cosx), 0 \leq x \leq \frac{\pi}{3}$