PrinceSultanUniversity
Math113, Major Exam 2
Term 181

Time Allowed: 75 minutes

Student Name: _____ _____ _____

Student ID #: _____

Serial Class #: _____ Section #: _____

Instructor's Name:

Important Instructions:

1. You may use a scientific calculator that does not have programming or graphing capabilities.
2. You may NOT borrow a calculator from anyone.
3. You may NOT use notes or any textbook.
4. Talking during the examination is NOT allowed.
5. Your exam will be taken immediately if your mobile phone is seen or heard.
6. Looking around or making an attempt to cheat will result in your exam being cancelled.
7. This examination has 6 problems, some with several parts. Make sure your paper has all these problems.

Problems	Max marks	Student's marks
Q#1,Q#2	14	
Q#3,Q#4	13	
Q#5,Q#6	13	
Total	40	

Q#1 [7 Marks] Evaluate $\int \frac{\sqrt{x}+1}{x-9}\,dx$

Q#2 [7 Marks] Evaluate $\int (\sin x)^3 (\cos x)^{\frac{3}{2}}\,dx$

Q#3 [6 Marks] Write the partial fractional decomposition form for the following. (Don't evaluate the constants)

1. $\dfrac{x+2}{x^4-x} =$

2. $\dfrac{3}{4x^4-x^2} =$

3. $\dfrac{x^2+1}{(x-1)(x-2)(x+3)(x-4)} =$

Q#4 [7 Marks] Find the surface area of the solid that is generated by revolving the arc $f(x)=\sqrt{x+1},\ 0\le x\le 8$ about the x-axis.

Q#5 [7 Marks] Evaluate $\int \left(x^2 + 2x - 4\right)\sin(2x)\, dx$

The solution:

Q#6 [6 Marks] Does $\int_2^8 \frac{1}{x-2}\, dx$ converge or diverges? (Show all your work).

The Solution: