KFUPM, DEPARTMENT OF MATHEMATICS AND STATISTICS

MATH 102 : TEST 6, T 171, DECEMBER 28, 2017

Name : ....

ID : .....

Exercise 1. Find the Taylor series of the function $f(x) = \ln(1+x)$ about the point $a = 1$.

Exercise 2. Determine whether the series

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^{0.99}}$$

is absolutely convergent or conditionally convergent.

Exercise 3. Find the radius of convergence of the power series

$$\sum_{n=1}^{\infty} \frac{2^n (x-1)^n}{n^{2/3}}.$$

Exercise 4. Evaluate the sum of the series

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n 2^n}.$$

Exercise 5. Evaluate the sum of the series

$$\sum_{n=0}^{\infty} \frac{(-1)^n \pi^{2n+1}}{3^{2n+3}(2n)!}.$$

Exercise 6. Write the following integral as a series

$$\int_0^1 \frac{x}{e^{x^3}}\, \mathrm{dx}.$$