King Fahd University of Petroleum and Minerals
College of sciences
Mathematics Department
Math 102 (T051)
Quiz#6

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1. Find the nth Maclaurin Polynomial for the function $f(x) = e^{-x}$ in sigma notation.

2. Find the nth Taylor Polynomial for the function $f(x) = \frac{1}{x}$ about $x_0 = -1$ in sigma notation.

3. Determine whether the sequence $\left\{(-1)^n \frac{2n^3}{n^3+1}\right\}_{n=1}^{+\infty}$ converges, and if so find its limit.

4. Find the general term of the sequence $\left(\sqrt{2}-\sqrt{3}\right), \left(\sqrt{3}-\sqrt{4}\right), \left(\sqrt{4}-\sqrt{5}\right), \cdot\cdot \cdot\cdot\cdot$ starting with $n = 1$ and determine whether the sequence converges, and if so find its limit.