King Fahd University of Petroleum and Minerals
Quiz 3 Math 102-152 Duration 45 minutes

Full Name: ID: Serial number:

Question 1 Discuss the convergence/divergence of the following sequences

a) $\left\{\sqrt{n}\sin(\pi/\sqrt{n})\right\}_{n=1}^{\infty}$

b) $\left\{\dfrac{\tan^{-1}n+\cos n}{1+\sqrt{n}}\right\}_{n=1}^{\infty}$

Question 2 Find the sum of the following series if possible:

a) $\displaystyle\sum_{n=0}^{\infty} \frac{\sqrt{n+3}-\sqrt{n+1}}{\sqrt{n+1}\sqrt{n+3}}$

b) $\displaystyle\sum_{n=0}^{\infty} \frac{7^{n-1}\cos(n\pi)}{10^n}$

Question 3 Determine whether the following series are convergent or divergent. Justify your answer.

a) $\sum_{n=1}^{\infty} \frac{\sqrt{n^3+1}}{2n^3+4n^2-4\cos n}$

b) $\sum_{n=0}^{\infty} \frac{1}{2+\sin n}$

d) $\sum_{n=2}^{\infty} \frac{1}{n \ln \sqrt{n}}$