King Fahd University of Petroleum and Minerals

Quiz: 4 Math 102 Semester: 142 Duration: 40 minutes

Full Name: ID:

Section: Serial number:

Question 1 Determine whether each of the following series is convergent or divergent. (Justify your answer)

a) $\sum_{n=1}^{\infty}(n+1)\tan\left(\frac{1}{n}\right)$

b) $\sum_{n=3}^{\infty}\frac{\ln n}{1+\sqrt{n}}$

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

Question 2 Find the sum of the following series if possible. (Justify your answer)

$a) \sum_{n=2}^{\infty} \frac{1}{(4n-1)(4n+7)}$

$b) \sum_{n=3}^{\infty} \left(\ln(\frac{1}{n+1}) + 2\ln\sqrt{n} \right)$

$c) \sum_{n=0}^{\infty} [\cos(n\pi) + \sin(n\pi)] \frac{4^{n+\frac{1}{2}}}{3^{2n-1}}$