King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 102 Section # 4, 5, 8 (091)
Quiz 4(a)

Time: 20 minutes Marks: _____/9

Name: _____ Section #: _____

ID #: _____ Serial #: _____

1. The error in approximating the sum of the series $\sum_{n=1}^{\infty}(-1)^n\frac{n}{5^n}$ by the sum of the first four terms is less than or equal to

   (a) $\frac{4}{5^5}$

   (b) $\frac{1}{5^5}$

   (c) $\frac{1}{5^4}$

   (d) $\frac{1}{4.5^4}$

   (e) $\frac{6}{5^6}$

2. The series $\sum_{k=1}^{\infty} k^2 \sin^2\left(\frac{1}{k}\right)$

   (a) converges by the root test

   (b) converges to 0

   (c) has sum $\frac{1}{2}$

   (d) is divergent

   (e) converges and its sum is 1

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Quiz 4(b)

Time: 20 minutes Marks: _____/9

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1. The series $1 + \dfrac{1}{2^2\sqrt{2}} + \dfrac{1}{3^2\sqrt{3}} + \dfrac{1}{4\sqrt{4}} + \cdots$ is

   (a) a divergent p-series with $p = \frac{1}{2}$

   (b) a divergent series

   (c) a convergent series with $p = 2$

   (d) a divergent series by the integral test

   (e) a convergent series with $p = 5/2$

2. The series $\displaystyle\sum_{k=1}^{\infty} (-1)^{k-1} \frac{k}{k^2+5}$

   (a) is conditionally convergent

   (b) has sum $\dfrac{2}{3}$

   (c) is absolutely convergent

   (d) is divergent

   (e) is not convergent by the alternating series test

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Quiz 4(c)

Time: 20 minutes Marks: _____/9

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1. The series $\sum_{k=1}^{\infty}(-)^k \frac{\sqrt{k}}{k+1}$

   (a) is absolutely convergent

   (b) is conditionally convergent

   (c) has the sum $\frac{1}{9}$

   (d) is divergent

   (e) is absolutely divergent

2. The series $\sum_{n=1}^{\infty}(\sqrt[n]{2}-1)^n$ is

   (a) convergent by the root test

   (b) divergent by the root test

   (c) a convergent geometric series

   (d) a series in which the root test is inclusive

   (e) divergent by the test of divergence

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Quiz 4(d)

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1. The series $\sum_{n=2}^{\infty} \frac{1}{n \ln n}$ is

   (a) convergent by the ratio test

   (b) divergent by the integral test

   (c) convergent by the comparison test

   (d) convergent because $\lim_{n \to +\infty} \frac{1}{n \ln n} = 0$

   (e) convergent by the integral test

2. The series $\sum_{n=1}^{\infty} (-1)^{n-1} \frac{n}{n^3 + 1}$

   (a) is divergent

   (b) is conditionally convergent

   (c) converges and has sum 7

   (d) is absolutely convergent

   (e) is convergent and has sum e^3