

Serial No.: \_\_\_\_\_ Student Name: \_\_\_\_\_ Student Number: \_\_\_\_\_  
Instructor: M. Z. Abu-Sbeih Math 102- Q5 Date: 9-1-2010

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**Show all your work. No credits for answers not supported by work**

1. Determine whether the series converges or diverges. State the name of the test you use.

$$\sum_{n=1}^{\infty} \frac{e^n}{n \cdot 3^n}$$

2. Determine whether the series absolutely convergent, conditionally convergent or diverges. *State the name of any test you use.*

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

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

$$(c) \sum_{n=1}^{\infty} (-1)^n \frac{n!}{2 \cdot 4 \cdot 6 \cdots (2n)}$$