

Serial No.: _____ Student Name: _____ Student Number: _____
Instructor: M. Z. Abu-Sbeih Math 102- Q5 Date: 13-8-2011

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

- 1) Determine if the series is convergent or divergent. State the name of the test you use.
(DO 2 PROBLEMS ONLY)

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

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

(c) $\sum_{n=1}^{\infty} \frac{n!n!}{(2n)!}$

- 2) Determine if the series is convergent or divergent. State the name of the test you use.
(DO ONE PROBLEMS ONLY)

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

(b)
$$\sum_{n=1}^{\infty} \frac{\cos n}{n^3}$$

- 3) Find all values of a for which the following series is absolutely convergent.

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

Serial No.: _____ Student Name: _____ Student Number: _____
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- 1) Determine if the series is convergent or divergent. State the name of the test you use.
(DO 2 PROBLEMS ONLY)

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

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

(c) $\sum_{n=1}^{\infty} \frac{(2n)!}{n!n!}$

- 2) Determine if the series is convergent or divergent. State the name of the test you use.
(DO ONE PROBLEMS ONLY)

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

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

- 3) Find all values of a for which the following series is absolutely convergent.

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