**Math 201** Quiz 1 (Time: 65 minutes) (Fall 2012)  *N. Nahlus*

**Name:** ……………………………………….. (VERY CLEARLY)

**I.D** ...........................................

**Circle your Section** number (- 3 points if incorrect)

**Sec 8 (12:30T) — Sec 9 (2:00 T) — Sec 10 (11:00 T) — Sec 11 (5:00 T) ---**

**Sec 12 (9:00M) — Sec 13 (3:30 R) — Sec 14 (10:00 M) — Sec 15 (5:00 R) ---**

**Investigate** = Investigate (with justification) convergence or divergence of the following series.

**In LCT problems:** IF you know the answer of L=simply write the answer **without proof.**

1. (24%) (a) Investigate 

|  |  |
| --- | --- |
| Problem 1 |  |
| Problem 2 |  |
| Problem 3 |  |
| Problem 4 |  |
| Problem 5 |  |
| **Total over 100** |  |

(b) Investiagte  given that

(c) Investiagte  given that 

d) Investigate  (Hint: Write  as exponential. Then use exp. Series.)

2a) (9%) Find 

**Hint** : Use  (if this last exists) . Moreover, 

**2b)** (10%) Find the open interval of convergence 

Do **not** check end-points

**3)** (19%) a) (10%) Find the Maclaurin series of to deduce 

**3b)** (9%) Find the exact value of 

(Hint: Differentiate the series 

**4)** (19%) **Suppose**  **converges,** prove or disprove that  converges

**4b)** **Suppose**  **converges,** prove or disprove that  converges

**4c)** If  for all n, investigate convergence/divergence of 

(Hint: First, find )

**5) (19%)** a) (8%) **Find** 

**5b)** (6%) Suppose .

Show that= its Maclaurin series for 0 < x < 1000

(Hint: Use Taylor’s Remainder’s formula  )

**5c)** (5%) Use the Maclaurin series of 