Part-A, Ist Mid Semester Exam

MATH-I, AUGUST 21, 2014

Section:

TIME: 15 MINUTES, MAXIMUM MARKS: 10

NAME:_____ ROLL NO.:_____

Note: Each question carry 2 marks for correct answer and carry a **negative marking of 1 mark for wrong answer**. Some of the questions have four alternative answers (A, B, C, D) have of which only one is correct. Encircle/Tick the **correct** answer.

1. **The supremum and infimum of the set** $\left\{ \frac{2n+1}{n+1} : n \in \mathbb{N} \right\}$ **are** ...... **and** ...... **respectively.**

2. **The value of** $\lim\limits_{x \to \infty} \frac{(x^{10})^3}{e^x - 1}$ **is:**
   - (A) 0
   - (B) 1
   - (C) $3! \times 10!$
   - (D) Does not exists.

3. **The equation** $x^2 - \cos x = 0$ **has**
   - (A) No real roots
   - (B) Exactly one real root
   - (C) Exactly two real roots
   - (D) Infnitely many real roots.

4. **If** $f'(x)$ **exists and is nonzero for all** x **then** $f(1) \neq f(4)$**. TRUE or FALSE?**.

5. **Consider the fucntion** $f(x) = \frac{2x^2+1}{x^2+1}$**. Then** $f(x)$ **is concave on** ...... **and convex on** ....