**Please, don't write on the exam paper.**

**Question 1**

Let $C_n = 1^3 + 2^3 + ... + n^3$   $(n \geq 1)$

Prove by recurrence that for any natural number $n \geq 1$:

$$C_n = \frac{n^2(n+1)^2}{4}$$

**Question 2**

Prove the following statement by contradiction or contrapositive :

If $a^2 - 2a + 7$ is even, then $a$ is **odd**.  ($a$ integer )

Nota : **odd** : impair