**Topic: Number Theory**

**Practice Questions set -II**

1) Prove the congruence using Fermat Little Theorem

2) Prove that

3) Use Euler’s Theorem to compute

4) Solve the following congruence using Euler’s Theorem

5) Solve the following system of simultaneous congruences

using Chinese remainder theorem.

6) There are some eggs in a bucket. If they are removed from it picking 2 at a time one remains in the basket, if they are removed three at a time, two remains in the bucket, if they are removed three at a time, two remains in the bucket, if they are removed 5 at a time, 4 remains. No egg remains if we remove them is a group of 7. What is the smallest number of eggs in the bucket.

7) Find the last two digits in the decimal expression

8) Find the least positive residue of mod 11

9) Prove that divides

10) Find the last digit in the decimal expression

Linear Mapping and Matrices

1. Consider the linear mapping defined by F