# MMA-E314
# NUMBER THEORY

MM : 100 Sessional : 30
Time : 3 hrs ESE : 70
L T P Pass Marks : 40
5 2 0

**NOTE:** The question paper shall consist of two sections (Sec.-A and Sec.-B ). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper

Prime numbers, Unique factorisation theorem, Farey series, Irrational numbers, Congruence, Quadratic residues.

Quadratic Reciprocity law, Primitive roots, Fermat's theorem, Wilson's theorem, Continued fractions, Approximation of irrationals by rationals.

Hurwitz theorem, The fundamentals of arithmetic in K(i), K(I) P, Diphnatine equations $x^2+y^2=z^2$, $x^4=y^4$, $ax^2+by^2+cz^2=0$, Quardratic fields.

The arithmetic functions (Mu,Tau, Phi and Sigma )including elementary results on their order and average order. Representation of a number by two or four squares.

Warings Prob Elementary results on g (k) and G(K), The prime number theory.

## Text /Reference Books


1. D. M. Burton, Elementary Number Theory, Mcgraw-Hill.
2. I. Niven, H. S. Zuckerman and H. L. Montgomery, An Introduction to Theory of Numbers, John Wiley & Sons.
3. A. Baker, A comprehensive Course in Number Theory, Cambridge University Press.