SEMESTER – II

SUBJECT: MATHEMATICS (MATH)

FULL MARKS: 40 **CONTACT HOURS: 80 HOURS**

COURSE CODE : THEORY

UNIT No.	TOPICS	CONTACT HOURS	MARKS
Unit-I	**ALGEBRA**	**35**	**15**
	1. Principle of Mathematical Induction Process of the proof by induction motivating the application of method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.	**7**	**3**
	2. Binomial theorem History, Statement and proof of the binomial theorem for positive integral indices. Pascal's Triangle, General and middle term in Binomial expansion, Simple applications.	**13**	**6**
	3. Sequence and series Sequence and series. Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P.), Geometric Mean (G.M,) relation between A.M. & G.M., Arithmetic-Geometric Progression Series (AGP series), infinite G.P. and its sum, sum to *n* terms of the special series $\sum x, \sum x^2$ and $\sum x^3$	**15**	**6**
Unit-II	**COORDINATE GEOMETRY (2D)**	**30**	**15**
	1. Straight lines Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: Parallel to Axis, Point–slope form, slope intercept form, two point form, intercept form, distance of a point from a line.	**10**	**5**
	2. Conic sections Sections of a Cone: circle, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of conic section; Standard equation of circle, general equation of circle, Standard equations and simple properties of Parabola, Ellipse and Hyperbola.	**20**	**10**

UNIT No.	TOPICS	CONTACT HOURS	MARKS
Unit-III	**STATISTICS AND PROBABILITY**	**15**	**10**
	1. Statistics Measures of dispersion: Range, mean deviation, variance and standard deviation of ungrouped/ grouped data **2. Probability** Random experiments, outcomes, Sample spaces (set representation), Events: Occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.	**5** **10**	**3** **7**

[Note:20 Hours reserved for Remedial classes, Tutorials and Home Assignments.]