PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23MAMDL101: BASIC MATHEMATICS

Semester : **I** **30 Hours** **Credits : 2**

Offer to : BCOM Hons(BAK,BPM,CA,FIN,CG,TPP) & BCA Hons

Course Outcomes : After successful completion of this course, the student will be able to
1. understand the concept of sets and relations
2. know the method of rationalisation in surds
3. understand Co-ordinate system and Locus
4. find the Point of intersection of two straight lines
5. find the Rank of a matrix.

Unit – I : Algebra

Sets and Relations : Sets – Finite and Infinite sets – Equality of sets – Subsets – Power set – Universal set – Union and Intersection of sets – Relations – Equivalence relations –Examples.

Surds : Surd – Pure and Mixed surds – Similar surds – Monomial surds – Binomial Surds – Rationalisation.

Logarithms : Definition – Properties of Logarithms – Common Logarithms.

Unit – II : Co-ordinate Geometry

Co-ordinate system : Distance between two points – Division formula – Centroid – Areas of Triangles and Quadrilaterals.

Locus : Definition of Locus – Equation of Locus

Straight Line: Different forms – Reduction of general equation into various forms –Point of intersection of two straight lines.

Unit – III : Matrices

Matrices: Types of matrices – Examples – Addition of Matrices – Subtraction of Matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants – Minors and Cofactors – Adjoint of a matrix – Inverse of a matrix – Rank of a matrix – definition and examples.

Activities: Seminar/ Quiz/ Assignments/ Problem Solving Sessions.

Reference Books :

1. Basic Abstract Algebra by P.B. Bhattacharya, S.K. Jain, S.R. Nagpaul, Cambridge University Press
2. Co-ordinate Geometry by M.L. Khanna, Jai Prakash Nath Publications.
3. A Text book of Matrices by Shanti Narayan & PK Mittal, S. Chand Publications

Question Paper Pattern:

(a) Internal Assessment Test: 15Marks(10Marks+5Marks)
(b) Semester End Exam: 35 Marks

SEE Consists of two sections-

(i)Section A : Set 5 questions, atleast one question from each unit answer any Three out of 5 questions. Each question carries 5 Marks(5M X3=15)

(ii)Section B : Set 3 questions, one from each unit . Each question carries 10 Marks(10M X 2 =20)

MODEL QUESTION PAPER

23MAMDL101: BASIC MATHEMATICS **Semester: I**

Max.Marks : 35 **Max.Time: 2hrs.**

Pass Minimum: 14Marks

SECTION – A

Answer any THREE of the following **3x5=15 Marks.**

1. A={1,2,3,4} B={2,4,6,8,10} then find i. A□B ii. A□B iii. A-B iv. B-A

2.Rationalise the denominator of $\frac{1}{3-2\sqrt{3}}$

3. Find the point of concurrence of the set of lines $a(3x+y+4)+b(2x+3y-2)=0$

4. A= $\begin{bmatrix} 2 & -4 \\ -5 & 3 \end{bmatrix}$ then find $A+A^T$ & $A-A^T$

5.If $\begin{bmatrix} x-3 & 2y-8 \\ z+2 & 6 \end{bmatrix} = \begin{bmatrix} 5 & 2 \\ -2 & a-4 \end{bmatrix}$ then find the values of x, y, z & a

SECTION – B

Answer any TWO of the following. **2x10=20 Marks**

6.If $a^x=b^y=c^z$ & $y^2=xz$ then show that $\log_b a=\log_c b$

7. Find the equation of locus of a point of difference of whose distance from (-5,0) & (5,0) is 8 units.

8.If A=$\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ then show that $A^2-4A-5I=0$

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