

MAT-117 Elementary Mathematics

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Max. Marks: 100

Theory: 100 (External: 70 and Internal assessments: 30)

Periods per Week 2

Pass %: 50%

INSTRUCTIONS FOR THE PAPER SETTERS/CANDIDATES

The question paper will consist of three sections A, B and C. Section-A and B will have four questions from the respective sections of the syllabus and carry 10 marks each. Section - C will consist of 10 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks for each. Candidates are required to attempt two questions each from sections A and B of the question paper and the entire Section-C.


Theory

UNIT I

1. Straight lines: Distance formula, section formula (internal and external division), Change of axes (only origin changed), Equation of co-ordinate axes, Equation of lines parallel to axes, Slope-intercept form of equation of line, Slope-point form of equation of line.
2. Two point form of equation of line, Intercept form of equation of line, Normal form of equation of line, General form of equation of line, Point of intersection of two st. lines, Angles between two st. lines, Parallel lines, Perpendicular lines.
3. Circle: Equation of circle whose centre and radius is known, General equation of a circle, Equation of circle passing through three given points.
4. Equation of circle whose diameters is line joining two points (x_1, y_1) & (x_2, y_2) Tangent and Normal to a given circle at given point (Simple problems), Condition of tangency of a line $y = mx + c$ to the given circle $x^2 + y^2 = a^2$.


UNIT II

5. Differential Calculus: Definition of function, limit and continuity, Simple problems on limit, Simple problems on continuity, Differentiation of x^n , e^x , $\sin x$ & $\cos x$ from first principle.
6. Derivatives of sum, difference, product and quotient of two functions, Differentiation of functions of functions (Simple problem based on it), Logarithmic differentiation (Simple problem based on it), Differentiation by substitution method and simple problems based on it.
7. Differentiation of Inverse Trigonometric functions. Maxima and Minima of the functions of the form $y=f(x)$ (Simple problems based on it). Integral Calculus: Integration of


Ms. Namita Berry


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Ms. Jyoti


Ms. Poonam Chawla


Ms. Shivdeep Kaur


Dr. Rajinder Pal


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B.Sc. (Hons.) Agriculture Syllabus (1st Semester) for 2023-24

simple functions, Integration of Product of two functions, Integration by substitution method.

8. Matrices and Determinants: Definition of Matrices, Addition, Subtraction, Multiplication, Transpose and Inverse up to 3rd order, Properties of determinants up to 3rd order and their evaluation.

Suggested Reading

1. Calculus by Thomas and Finney
2. Algebra by D. C. Kapoor & Gurbax Singh
3. Algebra by T. N. Nagpal & K. K. Gupta.
4. Comprehensive Calculus by R. S. Dehiya.
5. New Style Calculus for T. D. C. –I.
6. New Style Co-ordinator Geometry by R. K. Sondhi
7. Trigonometry by Jiwan
8. Mensuration by PicPoint.




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