

MST-001 Foundation in Mathematics and Statistics



Block

2

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Prof. K.R. Srivathsan Pro-Vice Chancellor IGNOU, New Delhi

Prof. Parvin Sinclair Pro-Vice Chancellor IGNOU, New Delhi

Prof. Geeta Kaicker Director, School of Sciences IGNOU, New Delhi

Prof. R.M. Pandey Department of Bio-Statistics All India Institute of Medical Sciences

New Delhi

Prof. Jagdish Prasad Department of Statistics University of Rajasthan, Jaipur Prof. Rahul Roy Maths and Stat. Unit Indian Statistical Institute, New Delhi

Dr. Diwakar Shukla

Department of Mathematics and Statistics Dr. Hari Singh Gaur University, Sagar(MP)

Prof. G.N. Singh

Department of Applied Mathematics

I.S.M. Dhanbad

Prof. Rakesh Srivastava Department of Statistics M.S. University Vadodara (Gujarat)

Dr. Gulshan Lal Taneja Department of Mathematics M.D. University, Rohtak

Faculty Members, School of Sciences, IGNOU

Statistics

Dr. Neha Garg Dr. Nitin Gupta Mr. Rajesh Kaliraman Dr. Manish Trivedi

Mathematics

Dr. Deepika
Prof. Poornima Mital
Prof. Suiotha Varma

Prof. Sujatha Varma Dr. S. Venkataraman

Block Preparation Team

Content Writer

Dr. Manish Trivedi Reader in Statistics School of Sciences IGNOU, New Delhi

Content Editor

Dr. Gulshan Lal Taneja Associate Professor Department of Mathematics M.D. University, Rohtak

Language Editor

Dr. Parmod Kumar Assistant Professor

School of Humanities, IGNOU

Formatted By

Mr. Rajesh Kaliraman School of Sciences, IGNOU.

Secretarial Support

Ms. Preeti

Course Coordinator: Mr. Rajesh Kaliraman Programme Coordinator: Dr. Manish Trivedi

Block Production

Mr. Y. N. Sharma, SO (P), School of Sciences, IGNOU CRC prepared by Mr. Rajesh Kaliraman, SOS, IGNOU and Ms. Preeti

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BLOCK 2 FUNDAMENTALS OF MATHEMATICS-II

This is the second block of the course MST-001. The aim of this block is to provide sufficient material which will be needed in order to study course MST-003 and some sections of other courses of the programme.

Using the knowledge provided by the previous block of this course. The follow of the block is maintained by the following four units.

Unit 5: Limit and Continuity

In this unit concept of limit, evaluation of certain limits using factorisation, L.C.M., rationalisation and some standard rules have been discussed. Concept of left hand, right hand limits and infinite limit have been also introduced. The unit ends with the brief introduction of continuity.

Unit 6: Differentiation

This unit discusses a very important branch of calculus known as differentiation. In this unit, you will learn how differentiations of some commonly used functions are evaluated. Differentiations of functions using product rule, quotient rule and chain rule have been also discussed in this unit. Differentiation of parametric and implicit functions also takes place in the unit. Unit ends by giving a brief induction of higher order derivatives and maxima and minimum of functions.

Unit 7: Indefinite Integration

Another important branch of calculus known as integration is discussed in this unit. It discusses indefinite integral of some commonly used functions. It also discusses how we can evaluate an integral by using substitution method, partial fractions and integration by parts.

Unit 8: Definite Integration

This unit starts with the geometrical interpretation of the definite integral. Definite integral of some commonly used functions and properties of definite integral also have been discussed. Some examples based on first kind of improper integral also have been evaluated.

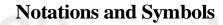


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 $x \rightarrow a$: x approaches to a

L. H.S. : left hand limit

R.H.S. : right hand limit

 ∞ : infinity

|x| : modules of x or absolute value of x

+ve : positive

– ve : negative

sign of integration

definite integral within limits a to b

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