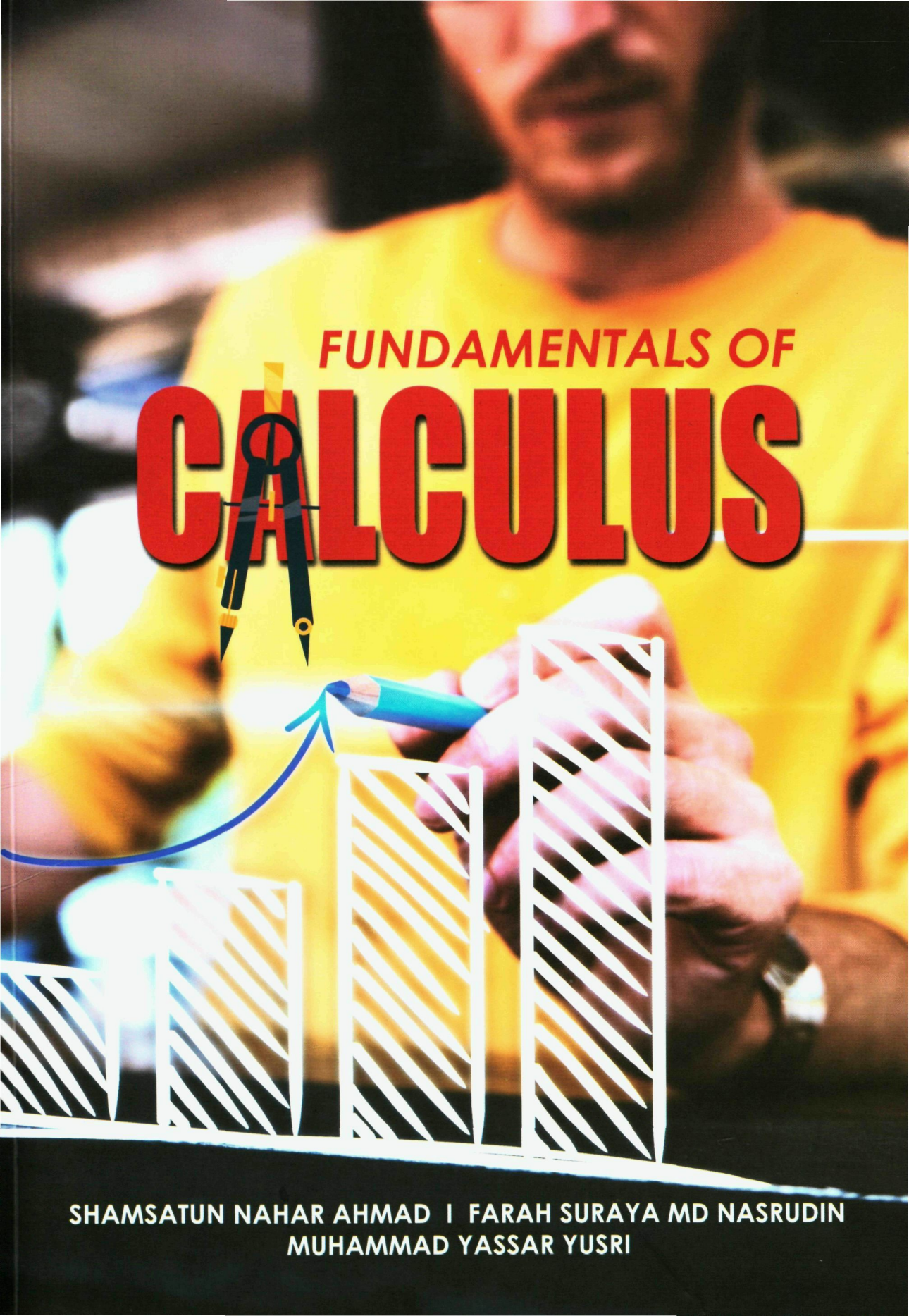

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FUNDAMENTALS OF CALCULUS

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PENERBIT PRESS
UNIVERSITI TEKNOLOGI MARA

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E-mail: penerbit@uitm.edu.my

UiTM Press is a member of
MALAYSIAN SCHOLARLY PUBLISHING COUNCIL

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Shamsatun Nahar Ahmad
Fundamentals of Calculus / Shamsatun Nahar Ahmad,
Farah Suraya Md Nasrudin, Muhammad Yassar Yusri.
ISBN 978-967-363-604-4
1.Calculus.
2.Real estate investment.
3.Government publications--Malaysia.
I.Farah Suraya Md. Nasrudin.
II.Muhammad Yassar Yusri.
III.Title.
515

Cover Design : Siti Suhaini Mazlan
Typesetting : Nurhunaina Mohd Bani

Printed in Malaysia by : UiTM Printing Centre
Faculty of Art & Design
Universiti Teknologi MARA
40450, Shah Alam
Selangor

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PREFACE

Fundamental of Calculus contains five chapters emphasising fundamental concepts from calculus and the application of these concepts to selected problems. Chapter One is a review of evaluation of functions and introduces the concepts of limits and continuity of the functions. Chapter Two introduces the differential calculus and develops differentiation formulas and rules for finding the derivatives associated with a variety of basic functions. Chapter Three investigates selected applications of the differential calculus. Chapter Four introduces the integral calculus and develops indefinite and definite integrals. Rules for integration and the construction of integral are demonstrated throughout the chapter with many examples. Chapter Five investigates selected applications of integral calculus in particular area between two curves and volume of the solid.

The main purpose of this book is to:

1. Provide an introduction to calculus in its many forms.

2. Give some presentations to illustrate how powerful calculus is as a mathematical tool for solving a variety of scientific problems.

3. Provide material detailed enough so that this book can be used as text book.

4. Introduce concepts from a variety of applications, such as related rate, analysis of polynomial functions and rational functions, maximum and minimum problems, Rolle's Theorem, Mean Value Theorem, calculating area and volume.

All definitions and theorems in this book are for the usage of certain problems and we omitted the proving.

The special features in this book are:

1. Exercises at the end of every chapter with answers.
2. Two sets Sample Examination with answers.
3. Two sets Self-Assessment.