

Copyright © Universiti Malaysia Pahang, 2015

First Print 2015

All right reserved. Apart from fair dealing for the purpose of study, research, criticism or review, as permitted under the Copyright Act, no part of this book may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher. Enquiries to be made to Penerbit Universiti Malaysia Pahang.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Kamal Z. Zamli.

COMBINATORIAL T-WAY TESTING / Author: Kamal Z. Zamli;

Co-Author: Basem Y. Alkazemi.

ISBN 978-967-0691-35-0

1. Computer Software—Testing 2. Software compatibility—Testing.

I. Basem Y. Alkazemi. II. Title.

005.14

Published by:

Penerbit Universiti Malaysia Pahang

Lebuh Raya Tun Razak
26300 Gambang, Kuantan,
Pahang Darul Makmur.

Tel: 09-5493320 Fax: 09-5493381

Email: penerbitilmiah@ump.edu.my

Printed by:

Syarikat Percetakan Inderapura Sdn. Bhd. (8763 H)

Jalan Tanjong Api Off Jalan Telok Sisek

25050 Kuantan, Pahang Darul Makmur.

Tel: 09-5177225, 5177031 & 5177025

Fax: 09-5139434

No. Perolehan 101019		No. Panggilan QA 76.76 T48 K36 2015 r5	
Tarikh 04 SEP 2015		No. Panggilan	

TABLE OF CONTENTS

List of Tables	vii
List of Figures and Illustrations	ix
List of Abbreviations and Nomenclature	xi
Preface	xiii
Acknowledgement	xv

Chapter 1

INTRODUCTION.	1
1.1 Overview of Software Testing	2
1.2 Test Case Design	4
1.3 Book Outline	7

Chapter 2

THEORETICAL BACKGROUND.	9
2.1 Preliminaries	9
2.2 Mathematical Foundation	11
2.3 Problem Definition Model	13
2.4 Issues on Adopting t-way Strategies for Testing	19
2.5 Chapter Summary	22

Chapter 3

CURRENT STATE-OF-THE-ART AND PRACTICES OF T-WAY STRATEGIES	23
3.1 Current State-of-the-Art of t-way Strategies	23
3.1.1 Pure Computational-based Strategies	24
3.1.2 Meta-Heuristics based Strategies	28
3.2 Current State-of-Practices of t-way Strategies	29
3.3 Discussion	32
3.4 Chapter Summary	34