

Contents

| | |
|--|----|
| <i>Special Features</i> | i |
| <i>Exam Paper Format</i> | v |
| <i>Comparison between NEW and OLD syllabuses</i> | vi |

9 Vectors 2

| | |
|--|----|
| 9.1 Vector operations | 4 |
| 9.2 Applications of vectors | 8 |
| 9.3 Vectors in Cartesian coordinate plane | 12 |
| 9.4 Scalar product of two vectors and its applications | 14 |
| Demonstration | 21 |
| Practice | 28 |

10 Differentiation 38

| | |
|---------------------------------------|----|
| 10.1 Derivative from first principles | 40 |
| 10.2 Rules of differentiation | 45 |
| 10.3 Tangents and normals | 50 |
| Demonstration | 55 |
| Practice | 58 |

11 Applications of Differentiation 64

| | |
|--|----|
| 11.1 Relative extrema and derivative tests | 65 |
| 11.2 Curve sketching | 69 |
| 11.3 Optimization problems | 72 |
| 11.4 Rates of change | 76 |
| Demonstration | 79 |
| Practice | 91 |

12 Integration.....106

12.1 Indefinite integrals 108

12.2 Definite integrals 114

12.3 Reduction formulae 116

Demonstration 120

Practice 125

13 Applications of Integration.....132

13.1 Plane areas by integration 133

13.2 Volume of solids of revolution 137

Demonstration 143

Practice 150

Mock Test 1 163

Mock Test 2 171

Mock Test 3 179

Mock Test 4 187

Index 195