

DIFFERENTIAL CALCULUS AND TRIGONOMETRY

UNIT I

Methods of Successive Differentiation – Leibnitz’s Theorem and its applications-Increasing & Decreasing functions –Maxima and Minima of function of two variables.

UNIT II

Curvature – Radius of curvature in Cartesian and in Polar Coordinates – Centre of curvature –Evolutes & Involutives

UNIT III

Expansions of $\sin(nx)$, $\cos(nx)$, $\tan(nx)$ – Expansions of $\sin^n x$, $\cos^n x$ – Expansions of $\sin(x)$, $\cos(x)$, $\tan(x)$ in powers of x .

UNIT IV

Hyperbolic functions – Relation between hyperbolic & Circular functions-Inverse hyperbolic functions.

UNIT V

Logarithm of a complex number –Summation of Trigonometric series – Difference method- Angles in arithmetic progression method –Gregory’s Series

TEXT BOOK(S)

- [1]. T.K.Manicavachagam Pillai & others, Differential Calculus, S.V Publications, Chennai -1985 Revised Edition.
- [2] S.Arumugam & others, Trigonometry, New Gamma Publications -1985 Revised Edition
 - UNIT – I - Chapter 3 Sections 1.1 to 2.2 & Chapter 4 Section 2.1, 2.2 and Chapter 8 Section 4 & 4.1 of [1]
 - UNIT – II Chapter 10 Sections 2.1 to 2.6 of [1]
 - UNIT – III Chapter 1 Sections 1.2 to 1.4 of [2]
 - UNIT – IV Chapter 2 Sections 2.1& 2.2 of [2]
 - UNIT – V Chapter 3 & Chapter 4 Sections 4.1, 4.2 & 4.4 of [2]

REFERENCE(S)

- [1] S.Arumugam and Isaac, Calculus, Volume1, New Gamma Publishing House, 1991.
- [2] S. Narayanan, T.K. Manichavasagam Pillai, Trigonometry, S. Viswanathan Pvt Limited, and Vijay Nicole Imprints Pvt Ltd, 2004.