

COMPLEX ANALYSIS

UNIT I

Functions of a Complex variable – Limits-Theorems on Limits – Continuous functions – Differentiability – Cauchy - Riemann equations – Analytic functions – Harmonic functions.

UNIT II

Elementary transformations - Bilinear transformations – Cross ratio – fixed points of Bilinear Transformation – Some special bilinear transformations.

UNIT III

Complex integration - definite integral – Cauchy's Theorem – Cauchy's integral formula – Higher derivatives.

UNIT IV

Series expansions- Taylor's series –Laurant's Series – Zeroes of analytic functions – Singularities.

UNIT V

Residues – Cauchy's Residue Theorem –Evaluation of definite integrals.

TEXT BOOK(S)

- [1] S.Arumugam, A.Thangapandi Isaac, & A.Somasundaram, Complex Analysis, New Scitech Publications (India) Pvt Ltd, 2002.
UNIT – I- Chapter 2 section 2.1 to 2.8 of Text Book
UNIT – II- Chapter 3 Sections 3.1 to 3.5 of Text Book
UNIT – III- Chapter 6 sections 6.1 to6.4 of Text Book
UNIT –IV - Chapter 7 Sections 7.1 to 7.4 of Text Book
UNIT – V - Chapter 8 Sections 8.1 to 8.3 of Text Book

REFERENCE(S)

- [1] P.P Gupta – Kedarnath & Ramnath, Complex Variables, Meerut -Delhi
[2] J.N. Sharma, Functions of a Complex variable, Krishna Prakasan Media (P) Ltd, 13th Edition, 1996-97.
[3] T.K.Manickavachaagam Pillai, Complex Analysis, S.Viswanathan Publishers Pvt Ltc, 1994.