

Unit I:-

Topics: Analytic functions, Cauchy-Riemann equations (in Cartesian and polar coordinate), Harmonic functions, Method to find conjugate functions and construction of an analytic functions, physical and geometrical aspect of an analytic functions.

Problems:

- Q. 01—20/Exercise 19 (on page 145) (Adv. Mathematics for Engineers by Chandrika Prasad)
- Solved Example 10.32 and 10.33 (on page 10.44 - 10.45) (J&I), 10.35 - 10.37 (on page 10.48 - 10.51) (J&I)

Topics: Line integral in a complex plane and its properties, simply and multiply connected domain, Cauchy's Integral theorem, extension of Cauchy's Integral theorem for multiply connected domain, Cauchy's Integral formula, Cauchy's Integral formula for higher order derivatives.

Problems:

- Q. 01—10/Exercise 21 (on page 171) (Adv. Mathematics for Engineers by Chandrika Prasad)
- Solved Example 1,2 (Adv. Mathematics for Engineers by Chandrika Prasad)
- Solved Example 11.7 & 11.8 (on page 11.10 & 11.11) (J&I)
- Solved Example 11.19 - 11.21 (on page 11.23 & 11.24) (J&I)
- Solved Example 11.24 & 11.25 (on page 11.29 & 11.30) (J&I)
- Solved Example 11.29 - 11.35 (on page 11.38 - 11.40) (J&I)
- Solved Example 11.39 - 11.41 (on page 11.47) (J&I)