ASSIGNMENT 2023
Directorate of Open and Distance Learning
Dibrugarh University

Subject: Mathematics (Second Semester)

Course: MATH-201
Complex Analysis

Assignment 1 (5+5)

    (a) Prove that an analytic function cannot be bounded in the neighbourhood of an isolated singularity.

    (b) State and prove Rouche's theorem.

Assignment 2 (5+5)

(i) Show that the transformation $w = iz + i$ maps the half plane $x > 0$ onto the half plane $v > 1$.

(ii) Construct the general bilinear transformation which maps the upper half plane onto itself.

Course: MATH-202
Tensor

Assignment 1 (10)

(i) Derive the expressions for dot product and cross product of two vectors in terms of contravariant, covariant and physical components of vectors.

Assignment 2 (10)

(i) Find the expression for covariant derivative of mixed components of a second order tensor.

Course: MATH-203

Differential Equations and Integral Equations

Assignment 1 (10)
    (i)   Solve the two dimensional diffusion equation using separation of variables.

Assignment 2 (10)
        Write a short note on Volterra integral equation of the first kind.

Course: MATH-204

Inviscid Fluid Mechanics

Assignment 1 (10)
    (i)   What do you mean by acyclic and cyclic motions?

Assignment 2 (2+8)
    (i)   State and prove Kelvin's minimum energy theorem.