

**SRM Institute of Science and Technology
Ramapuram Campus.**

Department of Mathematics

Assignment – 4

Sub. Code: 18MAB102T

Sub. Title: Advanced Calculus and Complex Analysis

Year : I Year B. Tech. (Common to all Branches)

Date of Submission : on or before 12.07.2021

Date: 09.07.2021

Max. Marks: 10

Semester : II

Unit 4

Analytic Functions

1. Show that the function $f(z) = e^z$ is analytic.
2. Show that $u = 2x^2y + 3y^3$ is harmonic.
3. Find the harmonic conjugate of $u = e^x \cos y$.
4. Find the image of the circle $|z| = 2$ under the transformation $w = 3z$.
5. Find the fixed or invariant points of the transformation $w = \frac{z-1}{z+1}$.

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