No.of pages: 1

A-822

M.Sc. II Semester ATKT Examination 2020

Subject : Mathematics

Paper : I – Complex Analysis

Max.Marks : 15

Note: Attempt any five questions.

1. State and prove Schwarz Lemma.

2. Show that the function e^z has an isolated essential singularity at $z=\infty$.

3. Apply the calculus of Residue to prove that $\int_0^{\infty} \frac{dx}{1+x^2} = \frac{\pi}{2}$

4. If $f(z) = u + iv$ is analytic function and $u - v = e^x(\text{Cos } y - \text{Sin } y)$. Find $f(z)$ in term of z.

5. State and prove Morera's theorem.

6. State and prove Maximum Modulus principle.

7. State and prove Hurwitz theorem.

8. State and prove Cauchy's Residue theorem.
