MANJARA CHARITABLE TRUST

RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI

**Department of Applied Sciences & Humanities**

## INTERNAL ASSESMENT EM & AM-I (IA) - I

Date: - 29/10/2024

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| Max. Marks: 20<br>Class: F.E.SEM-I<br>Name of the Course: Applied Mathematics-I<br>Branch: All | **Duration:** 1 Hour |

**Instructions:**

1. Question 1(i,ii,iii )is **compulsory for 10 Marks**
2. From Question 2 to 4 **(Solve any Two )**
3. Figures to the right of the question indicate full marks.
4. Assume the suitable data wherever necessary.
5. Illustrate your answers using neat diagrams wherever necessary.

| Questions | Max Mks | Bloom's Taxonomy Level | Course Outcomes |
|---|---|---|---|
| Q1. i Solve $(1+i)^{\frac{4}{3}}$ | 3 | 1 | CO1 |
| Q1. ii If $5sinhx - coshx = 5$, then find $tanhx$ | 3 | 2 | CO2 |
| Q1. iii Solve the following equations by Gauss-Seidel Method(Perform Two Iterations only)<br>$x_1 = 1.2$<br>$10x + y + z = 12$<br>$2x + 10y + z = 13$<br>$2x + 2y + 10z = 14$ | 4 | 2 | CO6 |
| **From Question 2 to 4 (Solve any Two )** | | | |
| Q2 Show that $\frac{sin5\theta}{sin\theta} = 16cos^4\theta - 12cos^2\theta + 1$ | 5 | 3 | CO1 |
| Q3 If $u = log[tan\left(\frac{\pi}{4}+\frac{\theta}{2}\right)]$ prove that $tanh(\frac{u}{2}) = tan(\frac{\theta}{2})$ | 5 | 2 | CO2 |
| Q4 Find a root of $x^3 - 9x^2 + 18 = 0$ by Newton-Raphson Method(Perform Two Iterations only) | 5 | 3 | CO6 |