

**A10**

**Sreenidhi Institute of Science & Technology**

(An Autonomous Institution)

**Code No: 101MA05/111MA05**

**B. TECH. II – Year I – Semester Examinations, MAY/JUNE, 2014 (Supplementary)**

**MATHEMATICAL TOOLS FOR ECE (ECE)**

**Time: 3 Hours Max. Marks: 70**

**Note: No additional answer sheets will be provided.**

**Part - A (Objective Type)**

**Max.Marks:20**

**Answer all QUESTIONS.**

1. Show that 
2. Show that=
3. Evaluate
4. Obtain a PDE that governs the families of surfaces
5. Show that is analytic.
6. Evaluate where C is the arc of the circle  from 
7. State Residue theorem.
8. Write the Newtons forward and backward difference formula.
9. For the equation find a interval of the real root lies between.
10. Write the Runge-Kutta second order method for the problem of

**Part – B**

**Max. Marks: 50**

**ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.**

1. a) Prove that 

b) Prove that 

1. a) Express as a polynomial in , where is the Legendre polynomial of order .

b) Show that .

1. a) Find the general equation of the PDE

b)Find the general equation of the PDE

1. a) Show that the function defined by satisfies C-R equations.

b) Cauchy’s integral formula .

1. a) Find Laurent series expansion for the function about z=0.

b) Find the Taylor’s series expansion of 

1. a) Obtain the Lagrange’s interpolation polynomial. [4 M]

b) Apply Lagrange’s formula to find the cubic polynomial which includes the following values of and , given . [6 M]

1. a) Find a real root of the equation by using iteration method.

b) Use Newton-Raphson method to obtain a root , to three decimal places of the equation

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1. a) Use the Runge-Kutta method to solve ; for the interval

with .

b) Given , where , use Picard’s method to obtain for and 1.

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