Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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|  |  |  |  |
| **Code :** | **14MA2005** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MATHEMATICAL FOUNDATION** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Prove that. | CO1 | 10 |
| b. | Expressin terms of  and . | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | If , prove that and . | CO1 | 12 |
| b. | Find the real and imaginary part of . | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Find the eigenvalues and eigenvectors of the matrix | CO1 | 14 |
| b. | Write any two properties of eigen values. Find the eigen value of , if the eigen value of A is 1, 3, 4. | CO1 | 6 |
| **(OR)** | | | | |
| 4. |  | State and verify Cayley Hamilton’s theorem for. Hence evaluate . | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Find if | CO2 | 5 |
| b. | If  then find | CO2 | 5 |
| c. | Find the radius of curvature of the curveat the point . | CO2 | 10 |
| **(OR)** | | | | |

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| 6. | a. | Find if | CO2 | 7 |
| b. | If  then find | CO2 | 7 |
| c. | If  then find | CO2 | 6 |
|  |  |  |  |  |
| 7. | a. | Evaluate | CO2 | 5 |
| b. | Evaluate | CO2 | 5 |
| c. | Evaluate | CO2 | 10 |
| **(OR)** | | | | |
| 8. | a. | Evaluate | CO2 | 12 |
| b. | Evaluate | CO2 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Solve. | CO3 | 10 |
| b. | Solve | CO3 | 10 |