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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17MA2005** | **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 | 12 |
| b. | Prove that | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | Separate into real and imaginary parts of and . | CO1 | 12 |
| b. | If , prove that the angle  is  nearly. | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Find the eigen values and eigen vectors of A = . | CO2 | 15 |
| b. | Find the rank of matrix . | CO2 | 5 |
| (OR) | | | | |
| 4. |  | Verify Cayley Hamilton theorem for A =  and hence find its inverse. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | If  then find. | CO3 | 8 |
| b. | If . Find . | CO3 | 8 |
| c. | Findfor. | CO3 | 4 |
| (OR) | | | | |
| 6. | a. | Prove that . | CO3 | 6 |
| b. | Find for . | CO3 | 6 |
| c. | If  then find. | CO3 | 8 |
|  |  |  |  |  |
| 7. | a. | Integrate | CO4 | 10 |
| b. | Evaluate . | CO4 | 10 |
| (OR) | | | | |
| 8. | a. | Evaluate. | CO4 | 12 |
| b. | Evaluate . | CO4 | 8 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Solve | CO5 | 10 |
| b. | Solve . | CO5 | 10 |