B.Sc. DEGREE EXAMINATION, APRIL 2018.

I YEAR I SEMESTER

Core - Allied I - ALLIED MATHEMATICS-I

Time : 3 Hours Max. Marks : 75

SECTION A – (10 × 2 = 20 marks)

Answer any *TEN* questions

1. If A= , prove that is symmetric.
2. If A= , then show that A is orthogonal.
3. Sum the series 1++
4. Find the sum of the series
5. Prove that
6. Write the expansion of in a series of ascending powers of
7. Find
8. Find
9. Find
10. Find
11. Show that
12. Show that .

SECTION B – (5 × 5 = 25 marks)

Answer any *FIVE* questions

1. Show that the matrix is orthogonal.

[P.T.O.]

1. Sum the series +
2. Show that
3. Find
4. Find
5. If then show that
6. Find the characteristic equation of the matrix A=

SECTION C – (3 × 10 = 30 marks)

Answer any *THREE* questions

1. Verify Cayley-Hamilton theorem for the matrix A=
2. Prove that
3. Express as a polynomial in .
4. Find
5. Find