B.Sc. DEGREE EXAMINATION, APRIL 2018.

I YEAR I SEMESTER

Core Major - Paper I - TRIGONOMETRY AND ANALYTICAL GEOMETRY OF TWO DIMENSIONS

Time : 3 Hours Max. Marks : 75

SECTION A – (10 × 2 = 20 marks)

Answer any *TEN* questions

1. Express cos 5 interms of cos

2. Evaluate:

3. Prove that sin ix = isin hx

4. If Sin(A+iB) = x+iy. Prove that

5. Find Log(1-i).

6. Prove that cosh2x =

7. Sum to infinity the series

8. Prove that

9. Define polar of a point ( with respect to parabola.

10. Chords of the ellipse touch Find the locus of their   
 poles.

11. If the normal at P meets the major axis of an ellipse at G, then prove that

12. Sum to n terms of the series

SECTION B – (5 × 5 = 25 marks)

Answer any *FIVE* questions

13. Prove that

14. Prove that =

15. Prove that

[P.T.O.]

16. If prove that.

17. Find the general value of

18. Prove that if u = show that

19. Show that the locus of the poles of normal chords of is

SECTION C – (3 × 10 = 30 marks)

Answer any *THREE* questions

20. Prove that.

21. Separate into real and imaginary parts of

22. Show that

23. Sum to infinity the series

24. If P be any point on the director circle, show that the locus of the middle point of the

Chord in which the polar of P cuts the ellipse is .