M.Sc Semester –III

Assignment

Subject- Mathematics

Course– History of Mathematics

Subject Course No.-DEMATH3OLEC5

Total Marks-25

Group-A

Answer any one of the following questions (15 marks)

1. (a) What is Pell's equation? Discuss solution of Pell's Equation in view of Brahmagupta's identity.

(b) Show that $\sqrt{3} + 1$ has a periodic continued fraction, and hence derive the continued fraction for $\sqrt{3}$.

2. (a) Write biographical note on Fermat.

   (b) Show that a nonzero integer solution of $r^4 - s^4 = v^2$ implies the existence of a rational right triangle with square area. Then deduce Fermat's last theorem for $n = 4$.

Group-B

Answer any one of the following questions (10marks)

1. (a) Show that, for any integers a and b, there are integers m and n such that $\gcd(a, b) = ma + nb$.
   (b) From (a) deduce that the equation $ax + by = c$ with integer coefficients a, b, and c has an integer solution x, y if $\gcd(a, b)$ divides c.
2. Discuss setback and influence of Lagrange's attempts to reduce calculus to algebra.
   (b) Write historical note on Napier's algorithm.