

**Prabhat Kumar College, Contai**

**Department of Mathematics**

**4<sup>th</sup> Semester Mathematics (Generic) CBCS Pattern**

**Paper: GE-4(T)**

**Time: 30 mins**

Answer any one :-

1. Explain Newton Raphson method for computing a real root of an equation  $f(x)=0$ .
2. For any two functions  $f(x)$  and  $g(x)$  defined for some set of values of  $x$ , show that  $\Delta \left[ \frac{f(x)}{g(x)} \right] = \frac{g(x)\Delta f(x) - f(x)\Delta g(x)}{g(x+h)g(x)}$ .

**Paper: GE-4(P)**

**Time: 30 mins**

Answer any one :-

1. Write a program to compute a real root of the equation  $x^3 - 9x + 1 = 0$  using Bisection Method.
2. Write a program to evaluate  $\int_0^3 (2x - x^2) dx$ , by Trapezoidal rule taking 6 intervals.