HANDIQUE GIRLS' COLLEGE
DEPARTMENT OF STATISTICS
ASSIGNMENT ON CALCULUS OF FINITE DIFFERENCE
SEMESTER: FYUGP 2nd SEMESTER(MAJOR/MINOR) SESSION: 2025-26
DATE OF ASSIGNMENT:29-04-2026 DATE OF SUBMISSION :10-05-2026

1. State and Prove Gauss Backword Interpolation formula
2. State and Prove Simpson's $(1/3)^{rd}$ and $(3/8)^{th}$ rule.
3. Four equidistant values u_{-1}, u_0, u_1 and u_2 being given, a value is interpolated by Lagrange's interpolation formula. Show that

$$u_x = yu_0 + xu_1 + \frac{y(y^2-1)}{3!}\Delta^2 u_{-1} + \frac{x(x^2-1)}{3!}\Delta^2 u_0$$

where $x + y = 1$