

JAGDISH NANDAN COLLEGE MADHUBANI

Department of Mathematics

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Home Assignment for winter vacation

B.Sc Part-III(H) (session:- 2021-2024)

Q.1. State and prove Implicit function theorem.

Q.2. State and prove Schwartz's theorem.

Q.3. State and prove Sylow's theorem.

Q.4. If $f(x, y) = x^2 \tan^{-1} \frac{y}{x} - y^2 \tan^{-1} \frac{x}{y}$, for $x \neq 0, y \neq 0$
 $= 0$ elsewhere,

Show that $f_{xy}(0,0) \neq f_{yx}(0,0)$

Q.5. Obtain Cauchy-Riemann equations in polar form.