NAME: S.No. ID:

Maximum Marks: 10 Section:18 Time Allowed: 25 minutes

(1) Find and sketch the domain of the function \( f(x, y) = \frac{\sqrt{y-x^2}}{(1-x^2)} \).

(2) Let \( W(s, t) = F(u(s, t), v(s, t)) \), where \( F, u, \) and \( v \) are differentiable,
\[ u(1, 0) = 2, \quad \frac{\partial u}{\partial s}(1, 0) = -2, \quad \frac{\partial u}{\partial t}(1, 0) = 6, \quad v(1, 0) = 3, \quad \frac{\partial v}{\partial s}(1, 0) = 5, \quad \frac{\partial v}{\partial t}(1, 0) = 4, \]
\[ \frac{\partial F}{\partial u}(2, 3) = -1 \text{ and } \frac{\partial F}{\partial v}(2, 3) = 10. \] Find \( \frac{\partial W}{\partial t}(1, 0) \).