Q.1] (i) Find $\frac{dy}{dx}$ if $x^y + y^x = a^b$

(ii) Find all stationary points of the function $x^3+3xy^2-15x^2-15y^2+72x$.

(iii) The focal length of the mirror is found from $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ $\quad \frac{1}{v} - \frac{1}{u} = \frac{2}{f}$ find v

error in f if u & v are both have p% error

Q 2] (i) If $u = x+y+z \quad v = x^2+y^2+z^2$ &

$w = x^3+y^3+z^3-3xyz$ are functionally dependent then the relat^n betⁿ them is ____

(ii) If $x = u^2-v^2 \quad y = uv$ find $\frac{\partial(u,v)}{\partial(x,y)}$ = ____

(iii) If $f(x,y) = (50-x^2-y^2)^{1/2}$ then find approximate value of $f(2.9, 4.1)$

(iv) The statement " Using Lagrange's method we can find only extreme values" is true or false ?