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a) $\frac{\partial f}{\partial u} = 2ue + 2u + 0 + y + 0 + 0$

$$\frac{\partial f}{\partial y} = 2ye + 0 + 0 + 2y + u + 2 + 0$$

b)

$$\frac{\partial f}{\partial u \partial y} = 4aye + 0 + 0 + 1 + 0 + 0$$

$$\frac{\partial f}{\partial y \partial u} = 4aye + 0 + 0 + 1 + 0 + 0$$

c) $\frac{\partial f}{\partial u}(1,3) = 2e^{10} + 5$