King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-301 Semester-142 QUIZ II

NAME: S.No. ID:

Maximum Marks: 10 Section:06 Time Allowed: 35 minutes

(1) Show that $F(x,y) =< y^2+2xy, x^2+2xy+1 >$ is a conservative field and then find its potential $\phi(x,y)$.

(2) Use Green' s theorem to evaluate $\int_C (x^5+3y)dx + (2x-e^{y^2})dy$, where C is the circle $(x-1)^2+(y-5)^2=4$.

(3) Find the surface area of the portion of the paraboloid $z = 4-x^2-y^2$ that is above the xy-plane