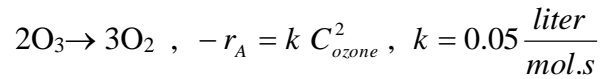**Reaction Engineering**
Test -3 , Time: 30 minutes

1.(a) Describe a method for the test of kinetic equation of an elementary gas-phase reaction
A + B ⇆ R in a plug flow reactor.

(b) 1 liter/s of a 20% ozone- 80% air mixture at 1.5 atm and 93ºC passes through a plug flow
reactor. Under these conditions ozone decomposes by homogeneous reaction

$$2O_3 \rightarrow 3O_2 \ , \ -r_A = k \ C_{ozone}^2 \ , \ k = 0.05 \frac{liter}{mol.s}$$

What size of reactor is needed for 50% decomposition of ozone?