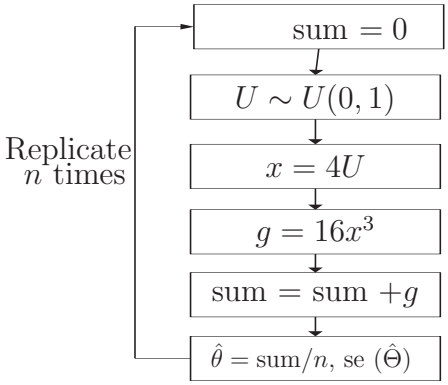
Name:_____, I.D. No.:_____.

1. (70 pts.) We are interested in obtaining $\theta = \int_0^4 4x^3 dx$ using simulation approach.

   (a) (30 pts.) Write down the simulation logic.

   i. Logic: $\theta = \mathrm{E}(G(x))$,

   ii. $G(x) = 16x^3, X \sim U(0,4)$



   (b) (20 pts.) Input Modeling (i.e. Generate data $X_1, X_2, \ldots, X_n$ used to estimate θ). Your can determine the vlaue n yourself.

   (c) (20 pts.) Output Analysis (如何由 $X_1, X_2, \ldots, X_n$ 推論 θ)

2. (30 pts.) Consider a Physical Examination (PE) system.

   (a) (15 pts.) List 3 appropriate performance measures.

   (b) (15 pts.) List 3 appropriate decision variables.