

20%

Problem	P1	P2	P3	P4	P5	P6	E1	E2	TOTAL
Score	<del>10</del>	19	20	20	20	20	5	5	112

Do not fill out the table above

STAT 110A  
Spring 2007

EXAM 4

05.30.07

Professor Ioudina

Exam's rules:

1. You have 50 minutes to complete this exam.
2. You can use a calculator.
3. You can use your own formula chart that contains all formulas from this course (1 page). This page does not include any verbal descriptions or numerical calculations.
4. You can not use your notes or any other studying materials on the exam.
5. No questions will be answered during the exam.
6. Please keep your cell phone OFF during the exam. It is not allowed to use your cell phone as a calculator.
7. It is not allowed to use any electronic devices during the exam.
8. Giving or receiving information during the exam is a violation of the UCLA Honor Code.

PROBLEMS:

1. Suppose that  $X_1 = 0.42, X_2 = 0.10, X_3 = 0.65$  and  $X_4 = 0.23$  is a random sample of size 4 taken from the pdf  $f_x(x; \theta) = \theta x^{\theta-1}, 0 \leq x \leq 1$   
Find the Method of Moments Estimate for parameter  $\theta$ .

$$E(X) = \int_0^1 x \theta x^{\theta-1} dx = \theta \int_0^1 x^{\theta} dx = \frac{\theta x^{\theta+1}}{\theta+1} \Big|_0^1 = \frac{\theta}{\theta+1} = \mu_1$$

$$= \frac{\sum x_i^2}{n} = \frac{1.4}{4} = .35 \neq \frac{\theta}{\theta+1} \Rightarrow .35\theta + .35 = \theta \Rightarrow .65\theta = .35 \Rightarrow \theta \approx .538$$

Parameter!

.538