Software Engineering (CSE-304) 11 June 2001
Name [ ] Student-ID [ ]

1. In the initial release of a product, $KCSI = KSSI = 100KLOC$ and $Defects/KCSI = 2.0$, while in the 2nd release of the product, $KCSI = 20KLOC$ and $Defects/KCSI = 1.6$. Assuming $KCSI = 40$ in the 3rd release, answer the following questions.

   (1) How much is the percentage of the improvement in $Defects/KCSI$ from the 1st release to the 2nd?

   Ans.( )

   (2) What is the total number of additional defects in the 2nd release?

   Ans.( )

   (3) So, how much percentage of the absolute number of defect reduction do customers experience?

   Ans.( )

   (4) The goal for $Defects/KCSI$ in the 3rd release should be less than the value obtained in (1) from the developer's point of view, but what about from the customer's point of view? Answer, how many should be the absolute target value of $Defects$ in the 3rd release both from developer's and customer's point of view.

   Ans.(from d. point of view:)
   Ans.(from c. point of view:)

2. About the hypothetical survey bellow, answer the following question.

	R	U	A	I	M	P	D
Satisfaction level	0.9	0.8	0.9	0.7	0.8	0.7	0.9
Logistic Regression coefficient	1.2	0.7	0.4	0.4	0.4	0.2	0.2
Odds ratio	7.4	4.1	2.6	2.3	2.1	1.9	1.4

   (1) Re-order RUAIMPD according to the priority to be improved.

   Ans.( )

   (2) Which attributes are negative for the overall satisfaction?

   Ans.( )

3. In applying a model to analyze defect arrival vs time, the testing effort should be homogeneous throughout the testing phase. Assuming the effort during the 4 day of testing was as the table bellow, how many person-hour per day should the number of defects be re-allocate on?

day	1st	2nd	3rd	4th
person	10	5	4	10
hour	8	8	4	16
defect	15	7	2	38

Ans.( )

4. We now want to pick up a sample out of a total population of 10,000 customers to learn their satisfaction level.

(1) How large is a sample sufficient under the following condition? Random sampling with 90% confidence, 5% margin of error, and estimated satisfaction level is 50%.

Ans.( )

(2) When we employ *stratified sampling* according to the age group, with statistics of each of the group being as follows. If we are to pick up a total of 1,000 customers, how large should be the size of each stratum?

age x	$x < 15$	$15 \leq x < 20$	$20 \leq x < 30$	$x \geq 30$
population	1,000	4,000	3,000	2000
mean of x	14	25	32	40
standard deviation of x	1	2	2	5

Ans.

age x	$x < 15$	$15 \leq x < 20$	$20 \leq x < 30$	$x \geq 30$
number of sample	( )	( )	( )	( )