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Daffodil International University

Department of Computer Science and Engineering (CSE)
Faculty of Science and Information Technology (FSIT)
Final Examination, Semester: Summer 2017
Course Code: STA 133 Course Title: Statistics and Probability
Section: ALL
Course Teacher: ALL

Time: 2.0 hrs **Full Marks: 40**

Answer any three of the following questions including question # 1:

1. a. The following table shows, for a sample of towns in Great Britanis, the number of solicitors and number of car stolen last week **6+7**

Number of solicitors	12	7	11	19	5	21
Number of stolen car	14	3	21	18	6	42

i) Is there any correlation between number of solicitors and stolen car? Justify your answer by graphically and mathematically. Interpret your result.
ii) Determine the regression model. Interpret your result.

b. The Quality Control department of Plainsville Peanut Company is responsible for checking the weight of the 8-ounce jar of peanut butter. The weights of a sample of 6 jars produced last hour are: 7.69, 7.80, 7.86, 7.90, 8.09, and 8.11 **4**
Find the coefficient of skewness and interpret the result for this sample.

c. The probability of raining Tuesday is 0.07.If today is Tuesday the find the probability of rain is today. **3**

2. a. The following values are the starting salaries, (in thousands), for a sample of five CSE graduates who accepted positions in IT officer last year. **4**

36, 26, 33, 28, and 31.Calculate range and standard deviation.

b. The accompanying contingency table gives frequencies for a classification of the equipment used in a manufacturing plant. **2+1+1+2**

	Equipment use			
Working status	Low	Moderate	High	Total
In working order	10	18	12	40
Under repair	2	6	8	16
Total	12	24	20	56

i. If a piece of equipment is using low, what is the probability that it is in under repair item? **ii.** Find the probably that the selected equipment is in working order status and highly used **iii.** What is the probability that the randomly selected equipment is in working order? **iv.** Are working status and equipment use status independent events? Justify your answer.

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3. **a.** If the independent probabilities that two people A and B will be alive in 30 years time are 0.4 and 0.3, calculate the probability that in 30 years' time **3**

i. Both will alive **ii.** At least one will alive **iii.** None will alive

b The rock group Blue String Beans is touring the United States. The following tables shows concert seating capacity and revenue in $000 for a sample of concerts. **7**

Concert seating capacity	56	68	60	58	65
Revenue	2	6	4	3	5

Calculate standard error.

4. **a.** The net incomes of a sample of large importers of antiques were organized into the following table: **6**

Net Income ($ millions)	Number of Importers
2 up to 6	1
6 up to 10	4
10 up to 14	10
14 up to 18	3

Calculate the 2^{nd} quartile, 4^{th} decile and P_{85}.

b. Define different types of kurtosis. Write down the difference between correlation and regression. **4**