

Faculty of Science and Information Technology
Final Examination, Semester: Summer'2018
Course Code: STA 133
Course Title: Statistics and Probability
Course Teacher: All

Time: 2 hrs

Full Marks: 40

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

- a. A sample of six data entry clerks employed in the Horry County Tax Office revised the following number of tax records last hour: 83, 73, 98, 60, 92 and 84. [3+1]
 i. Compute the coefficient of skewness.
 ii. What is your conclusion regarding the skewness of the data?

- b. The following data show the duration of experience of machine operators and their performance ratings given by the number of good parts turned out per 100 pieces. [3+3
 +1+1]

Experience (Years)	14	12	18	10	12
Performance Ratings	87	84	89	80	81

- i. Determine the coefficient of determination & interpret your finding.
 ii. Determine the fitted regression model for the given data.
 iii. Estimate the performance rating when an operator has 10 years' experience.
 iv. Draw the scatter plot.
- c. i. Suppose a family has two children and one of the children is a boy. Show sample space. What is the probability that both children are boys? [4+4]
 ii. In an exam, two reasoning problems are asked. 45% students solved problem 1, 25% students solved both the problems and 15% students did not solve any problems. How many students who solved the first problem will also solve the second one? What is the probability that a student solved only problem 2?
- a. Describe different types of skewness and correlation. Interpret the values if kurtosis = 9 and -3.2. [4+1]
 b. A coin is tossed 2 times. What is the sample space of this experiment? Calculate the probabilities of the followings: [3]
 i. At least 1 tail ii. Less than 2 tails, iii. Exact 2 tails.
- c. Out of 86 inspected item, it is found that there is 3.5 percent are defected items. If you choose an item, what is probability that it will be non-defective? [2]

3. a. Write down the difference between: [2+2]
i. Correlation and Regression ii. Simple and multiple regression.
b. Mention the characteristics of correlation coefficient. [1]
c. Finishing time of two workers of given a work for 6 times is given below: [5]

Worker A	10	12	13	15	12	17
Worker B	13	10	12	14	13	17

Which worker will you chose for next assignment? Why?

4. a. States the laws of probability. Write some short notes on: [1+4]
General multiplication rule, Addition rule, conditional probability and joint probability.
b. Growth rate of production from 2011 to 2016 are as follows: 1.2%, 0.8%, 0.25%, [5]
1.25%, 1.5% and – 0.12%. Calculate arithmetic and geometric mean. Find also standard deviation and variance.