

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING & TECHNOLOGY

End Term Examination (Regular), December 2022

BCA, Semester III, 2022-2023

Roll No.....

Course Name: Statistical Computing

Time: 2 hours

Max. Marks: 30

Course Code : AS1106

Instructions to students:

1. Use of scientific calculator is allowed.

2. Do not write anything other than your roll number on the question paper. All the best!!!!

Q.1 Calculate Karl Pearson's coefficient of correlation between price and demand for the following data.

05
[LO3]

Price	17	18	19	20	22	24	26	28	30
Demand	40	38	35	30	28	25	22	21	20

Q.2 In an art competition, two judges accorded following ranks to the 10 participants:

05
[LO3]

Judge 1	1	2	3	4	5	6	7	8	9	10
Judge 2	6	2	9	7	1	4	8	3	10	5

Calculate coefficient of rank correlation. Also, give conclusion on the basis of your rank.

Q.3 Fit a straight line to the following data.

05
[LO1,
LO4]

Year	1951	1961	1971	1981	1997
Production in (000 tons)	10	12	8	01	15

Also, estimate the production in 1987.

Q.4 A random sample of eight drivers insured with a company and having similar auto insurance policies was selected. The following table lists their driving experiences (in years) and monthly auto insurance premiums.

05
[LO1,
LO4]

Driving Experience (years)	Monthly Auto Insurance Premium
5	\$64
2	87
12	50
9	71
15	44
6	56
25	42
16	60

Find the least squares regression line by choosing appropriate dependent and independent variables. Also, Predict the monthly auto insurance premium for a driver with 10 years of driving experience

Q.5	Find the probability distribution of the following (a) The average number of accidents at a level-crossing every year is 5. Calculate the probability that there are exactly 3 accidents there this year. (b) An automatic camera records the number of cars running a red light at an intersection (that is, the cars were going through when the red light was against the car). Analysis of the data shows that on average 15% of light changes record a car running a red light. Assume that the data has a binomial distribution. What is the probability that in 20 light changes there will be exactly three cars running a red light?	05 [LO3, LO4, LO6]
Q.7	Draw Standard Normal Distribution Curve. Then, apply the same for below problem. For some computers, the time period between charges of the battery is normally distributed with a mean of 50 hours and a standard deviation of 15 hours. Rohan has one of these computers and needs to know the probability that the time period will be between 50 and 70 hours.	05 [LO1, LO2]