University of Sargodha

BS 2nd Semester/Term Examination 2020

Subject: Computer Science **Paper: Probability and Statistics (MATH-102)**

Time Allowed: 2:30 Hours **Maximum Marks: 80**

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part (Compulsory)

Q.1. Write short answers of the tollowing in 2-3 lines each on your answer sheet. (2*16)

(i) Define Statistics
(ii) Discuss Classification
(iii) Define Cumulative Frequency distribution
(iv) Give formula of quartile deviation
(v) What is Skewness and Kurtosis
(vi) What isTesting of hypothesis
(vii) Define Critical region
(viii) What is Confidence interval
(iX) Define Binomial experiment
(X) What is Sample space
(Xi) Give examples of Discrete random variable
(Xii) What is Sampling frame
(Xiii) When Non- probability sampling is used
(Xiv) Elaborate Experimental unit
(Xv) What is the range of Correlation Coefficient?
(Xvi) What is Method of least squares?

Subjective part (3*16)

Q.No.2: (a) Calculate Variance and coefficient of variation from the data given below

marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	5	12	15	25	8	3	2

(b) The following data set gives the percentages of family that are in the upper income level, for the same individual schools in the same order

72.2	31.9	26.5	29.1	27.3	8.6	22.3	26.5	20.4	12.8
25.1	19.2	24.1	58.2	68.1	89.2	55.1	9.4	14.5	13.9
20.7	17.9	8.5	55.4	38.1	54.2	21.5	26.2	59.1	43.3

(i) Compute the sample mean

(ii) Calculate the sample median

Q. No.3: A professor of statistics wants to estimate the average study time per week for students in statistics courses at his college. To accomplish this, he selects a sample of 25 students and records of their weekly study times. From the following compute variance and mean deviation from median and coefficients of both.

Study time	3	4	5	6	7	8
No. of Students	2	3	7	8	3	2

Q. No. 4: A study was made to know the relation between advertising expenditures (X) and the income (Y) in sale. The following data were recorded:

X	40	20	25	20	30
Y	85	100	95	65	175

(a) Find the regression line to predict the increase in sales.

(b) Estimate increase in sale when advertising expenditure is Rs. 35.

Q. No. 5: A bank manager wants to know the mean amount of mortgage paid per month by homeowners in an area. A random sample of 120 homeowners selected from this area showed that they pay an average of $1575 per month for their mortgages. The population standard deviation of such mortgages is $215. Find a 95% confidence interval for the mean amount of mortgage paid per month by all home owners in this area.

Q. No.6: The following table gives information on the amount of sugar (in grams) and the calorie count in one serving of a sample of 13 varieties of Kellogg's cereal.

Sugar(grams)	4	15	12	11	8	6	7	2	7	14	20	3	13
Calories	120	200	140	110	120	80	190	100	120	190	190	110	120

Find the correlation coefficient and interpret the results.