Department: Mathematics
College of Basic Education
Salahaddin University – Erbil

Module: Introduction to Statistics
Time: Two Hours
First Semester
Second trail –Final Exam 2021-2022

Q1// (A): Prove the $\frac{\sum_{i=1}^{n}(X_i+\bar{X})^2}{n-1} = \frac{\sum_{i=1}^{n}X^2 - \frac{(\sum_{i=1}^{n}X)^2}{n}}{n-1}$ **(4+5+6 Marks)**

(B) What is difference between **Sources of Data** and **Methods of Collection the data**?

(C) From the following data represents the degree for some students in two module:

Biology **Y= 25, 34, 30, 27, 29, 30, 17, 23, 30**
Computer skill X= 24, 20, 36, 12, 27, 28, 17, 36, 21
Compute (1). Coefficient variation for both X & Y (2). $\bar{X} + \sum_{i=1}^{n} Y_i$
(3). Mean for Y after add **5** degrees for each student in Biology

---

Q2// (A) Choose **answer** the following statement **(6+9 Marks)**

1. The variable …….. is an example of a quantitative variable.
a) name of city b) gender c) brand of cell phone d) age e) None of them

2. ……. is a sub set of elements that draw from the population.
a) Statistics b) Sample c) Sampling d) Historical Data e) None of them

3. If the standard deviation of a data set is 5 ft, what is the **variance**?
a) 5 b) 2.236 c) 25 d) All of them e) None of them

4. Shoes size of most of the people in Kurdistan is Number 38. Which measure of central value does it represent?
a) Mode b) Mean c) Median d) All of them e) None of them

5. What is the value of the **mode** when all values in the data set are different?
a) infinity b) 1 c) There is no mode d) 0 e) None of them

6. Statistics is……

(B) Find the regression for the following data on (X, Y), and interpreted the result:

X	17	25	31	42	65
Y	3.5	4.2	5.1	5.8	6.2

Write Simple Linear Regression equation and Then calculate the predicted values corresponding the new values of independent variable x= 70 and x=100 respectively.

Q3// (A) Count all types of data (variables) with provide an example for each types **(9+6 Marks)**

(**B**) For the following given values, indicate if the value is considering to be **coefficient of correlation** (r_{xy}) or not.

Explain your answer. **(1) r_{xy} = -0.25 (2) r_{xy} = +0.921 (3) r_{xy} = +1.25 (4) r_{xy} = 0 (5) r_{xy} = - 1**

Q4// (A) // From the following frequency table **(6+9 Marks)**

(number of students)	***Hawler***	***Dhuok***	***Soran***	**Karkuk**	***Sulimanyia***
frequency (f_i)	**60**	**25**	**40**	**15**	**45**

Find: 1- Percentage frequency (f*%) 2- Draw Pie chart 3- Bar Chart

(B) The following table represents Years of teaching (class) and their frequency(fi).

Find: 1- Q_2 2- Mean 3- Draw Histogram

Class	**6 - 10**	**11 - 15**	**16 - 20**	**21- 25**	**26 - 30**	**31 - 35**
fi	**6**	**3**	**8**	**10**	**2**	**6**

Lectures: Dr. Dler Mustafa Khidhr