

**ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD**  
**(Department of Statistics)**

**WARNING**

- 1. PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
- 2. SUBMITTING ASSIGNMENT(S) BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

**Course: Introduction to Statistics (4485)**

**Semester: Autumn 2025**

**Level: BS**

**Please read the following instructions for writing your assignments. (AD, BS, B. Ed. MA/MSc, MEd) (ODL Mode).**

1. All questions are compulsory and carry equal marks, but within a question, the marks may be distributed according to its requirements.
2. Read the question carefully and then answer it according to the requirements of the question.
3. Avoid irrelevant discussion/information and reproducing from books, study guides, or allied material.
4. Handwritten scanned assignments are not acceptable.
5. Upload your typed (in Word or PDF format) assignments on or before the due date.
6. Your own analysis and synthesis will be appreciated.
7. Late assignments can't be uploaded to the LMS.
8. The students who attempt their assignments in Urdu/Arabic may upload a scanned copy of their handwritten assignments (in PDF format) on the University LMS. The size of the file should not exceed 5MP.

**Total Marks: 100**

**Pass Marks: 50**

**ASSIGNMENT No. 1**

- Q. 1 (a) Define statistics. Discuss, giving examples, the importance of the study of statistics and show how it can help the extension of scientific knowledge.
- (b) Describe the methods that can be used in the collection of statistical data, stating the advantages and disadvantages of each method. **(10+10)**
- Q. 2 (a) Explain what is meant by classification. What are its basic principles?
- (b) Draw up a list of rules for the construction of graphs. **(10+10)**
- Q. 3 (a) Define the median. What are its advantages and limitations in the analysis of data?
- (b) The weekly wages (in rupees) of 50 workers are tabulated below:

Wages	100–120	120–140	140–160	160–180	180–200	200–220	220–240
No. of Workers	5	8	12	10	7	5	3

Find the Median Wage of the workers.

**(10+10)**

- Q. 4 (a) Define the mode. How is it located in ungrouped and grouped data?  
 (b) Explain the relationship between mean, median, and mode with examples.

**(10+10)**

- Q. 5 (a) Define geometric mean. How does it differ from the arithmetic mean? What are its advantages and disadvantages?  
 (b) Calculate G.M for the following frequency distribution,

Classes	0-5	5-10	10-15	15-20	20-25	25-30	30-35
Frequency	2	5	7	13	21	16	8

**(10+10)**

**Total Marks: 100**

**Pass Marks: 50**

## ASSIGNMENT No. 2

- Q. 1 (a) Define standard deviation. Why is it considered the most reliable measure of dispersion compared to other methods?  
 (b) The marks obtained by 60 students are given below. Calculate the mean deviation from the mean and its coefficient:

Marks	0–5	5–10	10–15	15–20	20–25	25–30
No. of students	4	6	10	15	14	11

**(10+10)**

- Q. 2 (a) Define the scatter diagram method of studying correlation. What are its merits and limitations?  
 (b) The following table gives the values of X and Y. Obtain the regression equations and the correlation coefficient:

X	5	6	8	9	11	12
Y	12	10	15	17	19	20

**(10+10)**

- Q. 3 (a) A box contains 3 white, 4 black, and 5 red balls. Two balls are drawn at random, one after another, without replacement.  
 (i) Find the probability that both are white.  
 (ii) Find the probability that one is white and the other is black.  
 (b) A card is drawn at random from a standard pack of 52 cards. Find the probability that it is:  
 1. A king or a queen

2. A spade
3. Not a face card
4. A red card
5. Neither an ace nor a king.

**(10+10)**

- Q. 4 (a) Explain the concept of a sampling distribution. Why is it important in Statistical inference?
- (b) Describe the difference between sampling errors and bias in surveys. Suggest ways to minimize them.

**(10+10)**

- Q. 5 (a) A machine is supposed to fill packets with a mean weight of 500 g. A sample of 49 packets has a mean of 508 g and a standard deviation of 14 g. Test at 5% level whether the machine is overfilling.
- (b) A study investigates whether the type of job and level of satisfaction are independent. Use the chi-square test at 5% significance level.

<b>Job Type</b>	<b>Satisfied</b>	<b>Neutral</b>	<b>Unsatisfied</b>
Clerical	120	90	60
Technical	100	95	85

**(10+10)**