**ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD.**

**(Department of Mathematics)**

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| **WARNING**1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM THE 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 THE "AIOU PLAGIARISM POLICY".**
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**Course: Understanding Mathematics and Statistics (9417) Semester: Spring, 2025 Level: BS(Islamic Studies/Arabic)**

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

1. All questions are compulsory and carry equal marks but within a question the marks are distributed according to its requirements.

2. Read the question carefully and then answer it according to the requirements of the questions.

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 analysis and synthesis will be appreciated.

7. Late assignments can’t be uploaded at LMS.

8. The students who attempt their assignments in Urdu/Arabic may upload a scanned copy of their handwritten assignments (in PDF format) on University LMS. The size of the file should not exceed 5MP.

**Total Marks: 100 Pass Marks: 50**

**Assignment No. 1**

**(Units 1-5)**

**Note: Attempt all questions and each question carries equal marks.**

**Q # 01** **(10+10)**

1. If a machine can produce 100 units in 5 hours, how long will it take for three such machines working together to produce 300 units?
2. Simplify the sum of the following algebraic expressions.

3*x*2 +2*x* +5, 2*x*2 - *x* +4, and *x*2 + 3*x* - 2.

**Q # 02 (10+10)**

1. Solve the following equation using the quadratic formula.

1. Find the value of *k* if the distance between the points A(4,7) and B(*k*, 1) is 13 units.

**Q # 03 (10+10)**

1. Find the inverse of matrix and verify that *A*. *A*-1 = *I.*

1. Find the next two terms and the 20th term of the sequence:

52, 122, 192, 262,…

**Q # 04 (10+10)**

1. For the sets , with universal set then represent using the Venn diagram.

1. If 2, *x*, *y* is an A.P. and *x*, *y*, 32 is a G.P., find the values of *x* and *y*.

**Q # 05 (10+10)**

1. Differentiate the function .

1. Evaluate

**Total Marks: 100 Pass Marks: 50**

**Assignment No. 2**

**(Units 6-9)**

**Note: Attempt all questions and each question carries equal marks.**

**Q # 01** **(10+10)**

1. What are the different types of averages used in statistics? Describe each with an example.
2. Why is a satisfactory average important in statistical analysis? Discuss its key characteristics.

**Q # 02 (10+10)**

1. If five coins are tossed, what is the probability of getting:
i) Exactly 4 heads?
ii) At least 3 tails?

 (b) For the following scores, prepare a grouped frequency distribution with class intervals of

 size 5: 43, 47, 52, 57, 48, 55, 60, 63, 58, 49, 51, 53, 59, 62, 50.

**Q # 03 (10+10)**

1. Make a Histogram and Pie Chart of the constructed frequency distribution in part Q # 2(b).
2. Write the first six rows of Pascal’s triangle and explain its significance in combinatorics.

**Q # 04 (10+10)**

1. Find the mean, median and mode for the following frequency distribution:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *x* | 10 | 20 | 30 | 40 | 50 | 60 |
| *f* | 5 | 8 | 12 | 15 | 10 | 6 |

(b) Calculate the Harmonic mean for the given set of values: 5, 10, 15, 20, 25.

**Q # 05 (10+10)**

1. What are the two main types of Statistics? Explain descriptive and inferential.

Statistics with examples.

(b) Explain different types of statistical errors (sampling error and non-sampling error).