# ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

***(Department of Economics)***

## 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 ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

**Course: Statistics for Economists (804)** **Semester: Autumn, 2012**
**Level: M. Sc. Economics** **Total Marks: 100**
**Credit Hours: 03** **Pass Marks: 40**

## ASSIGNMENT No. 1

**(Units 1–4)**

Q. 1 Discuss in details the Harmonic mean; Geometric mean and arithmetic mean also discuss essential differences among these. **(20)**

Q. 2 a) A letter is chosen at random from the word PAKISTAN **(10)**
   i) What is the probability that it is a vowel?
   ii) What is the probability that it is A?

   b) A three-digit number is formed by arranging the digits 1, 5, and 6 in a random order. **(10)**
   i) List the sample space.
   ii) Find the probability of getting a number larger than 400.
   iii) What is the probability that an even number is obtained?

Q. 3 The mean of IQs is 100 and the S.D is 13. If IQs are distributed normally, **(20)**
   a) What proportion of people have IQs.
      i) Over 130?
      ii) Under 80?
      iii) Between 20 and 120?
      iv) Between 90 and 130?
   b) Within what range would the IQs of top 95 people be?

Q. 4 Explain in detail the concept of sample and population. Also discuss various sampling techniques? **(20)**

Q. 5 On a certain Wednesday evening, a check was made of five different computer rooms in campus residence units. The number of students using computer in the five units was 22, 16, 34, 27, and 21, respectively. **(20)**
   a) Find the average number of users per room.
   b) Find the variance of this sample distribution.

# ASSIGNMENT No. 2

**Total Marks: 100** **(Units 5–9)** **Pass Marks: 40**

Q. 1 a) Describe the properties of an estimator. **(05)**

b) A sample of 300 employs was interviewed for opinions on their attitude concerning a new bonus plan being proposed by the management. The results, summarized separately for males and females, showed that 52 percent of the 180 male and 55 percent of the 120 female favoured it. Calculate a 90 percent confidence interval for the true opinion difference. **(15)**

Q. 2 a) Two sets of 50 elementary school children were taught to read by two different methods. After instruction was over, a reading test gave the following results: **(10)**

$x_1 = 73.4,\ x_2 = 70.3,\ s_1 = 8,\ s_2 = 10$ . Test the hypothesis that $\mu = \mu_2$.

b) Give $x = 82, o^2 = 15,\ and\ n = 100$, test the null hypothesis that $\mu = 86$. **(10)**

Q. 3 Suppose we have data of sheep X (in million) and production of wool sweaters (in thousands) for a certain region of Pakistan, as follows: **(20)**

| Years | Y | X |
|---|---|---|
| 1975 | 2 | 1 |
| 1985 | 5 | 4 |
| 1995 | 8 | 4 |
| 2005 | 10 | 5 |

a) Find the estimating equation for $Y = a + bX$, by the method of least square.

b) Find coefficient of correlation between Y and X.

Q. 4 a) Explain the difference between cyclical and seasonal variations in a time series. **(10)**

b) Explain with a suitable example, how Paschee's price index differs from a Lasper's prices index. **(10)**

Q. 5 Explain the following terms: **(20)**

a) Conditional probability

b) Mutually exclusive events

c) Frequency distribution

d) Histogram