

**ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD**  
**(Department of Mathematics and 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.**
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**Course: Statistics-I (394)**  
**Level: Intermediate**

**Semester: Autumn, 2013**  
**Total Marks: 100**  
**Passing Marks: 40**

**NOTE: ALL QUESTIONS CARRY EQUAL MARKS.**

- Q. 1: a) Define descriptive and inferential statistics and differentiate between them.
- b) There were 500 people of blood group A (kind 1), 300 of blood group B (kind 2) and 400 of blood group O (kind 3). After classification it was observed that for kind 1 there were 200 females, for kind 2, there were 100 females and for kind 3 there were 200 females. Draw an appropriate diagram for this data. (10+10)
- Q. 2: a) Measures of dispersion are important along with measure of central tendency, explain?
- b) The heights of hundred college students measured to nearest inch are given in the following table:

Height	60-62	63-65	66-68	69-71	72-74
F	5	18	42	27	8

Calculate coefficient of skewness. (10+10)

- Q. 3: a) Define mean deviation and its coefficient. Discuss its advantages and uses.  
 b) Calculate variance and standard deviation from the following frequency distribution: (10+10)

Wages	30-35	35-40	40-45	45-50	50-55	55-60
Frequency	12	18	29	32	16	8

- Q. 4: a) What is index number and what are its uses? Write down the different situations of index number.  
 b) Calculate the un-weighted price index for 1994 when the procurement/support price of agricultural commodities in rupees per 40 Kg in 1980 and 1994 are given as follows: (10+10)

<u>Commodity</u>	<u>Price</u>	
	<u>1980</u>	<u>1994</u>
Wheat	58	160
Rice	118	360
Potato	27	19
Onion	80	84

- Q. 5: a) Computer calculated mean and standard deviation from 20 observations as 42 and 5 respectively. It was later discovered at the time of checking that it had copied down two values as 45 and 38 whereas, the correct values were 35 and 58 respectively. Find the correct value of coefficient of variation.  
 b) The reciprocals of 11 values of x are given below;

0.0500      0.0454      0.0400      0.0333      0.0285      0.0232  
 0.0213      0.02000      0.0182      0.0151      0.0143

Calculate Harmonic and Arithmetic mean of the data (x). (10+10)

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## Assignment No. 2

- Q. 1: a) What are random numbers and how these are generated? Also give examples to explain their application.
- b) In throwing two dice, find:
- i. The probability of coming even numbers on both dices
  - ii. Probability of coming odd number on both dices.
  - iii. Probability of different number on both dices. (10+10)
- Q. 2: a) Define permutation and combination and discrimination between these two. Give example in each case to support your answer.
- b) A purse contains 2 silver, 4 copper and a second purse contains 4 silver, 3 copper coins. If a coin is selected at random from one of the purse, what is the probability that it is a:
- i. Silver coin
  - ii. Copper coin (10+10)
- Q. 3: a) What is meant by probability distribution? Distinguish between discrete and continuous random variables by giving examples.
- b) A box contains five slips of paper marked 1, 2, 3, 4, and 5. Two slips are selected without replacement; list the possible values for each of the following random variables:
- i. The sum of the two numbers on two slips
  - ii. The difference between the first and second number (10+10)
- Q. 4: a) What are random numbers and how these are generated? Also give example to explain their application.
- b) Three balls are drawn successively from a box containing 6 red, 4 white 5 blue balls. Find the probability that they are drawn in the order red, white and blue if each ball is:
- a) Replaced
  - b) Not replaced (10+10)
- Q. 5: a) What is a Binomial experiment and what are its properties?
- b) Ten vegetable cans, all of the same size, have lost their labels. It is known that 5 contain tomatoes and 5 contain corns. If 5 are selected

at random, what is the probability that all contain tomatoes? What is the probability that 3 or more contain tomatoes? (10+10)

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