

Exam. Code : 105403

Subject Code: 1405

**Bachelor in Business Administration (BBA)**

**3rd Semester**

**STATISTICS FOR BUSINESS**

**Paper—BBA-303**

Time Allowed—3 Hours]

[Maximum Marks—50

**Note** :— Attempt any **TEN** short answer type questions. Each question carries **1** mark and the total weightage is **10** marks.

**SECTION—A**

1. (a) Why is arithmetic mean generally preferred over median as measure of central tendency ?
- (b) Explain the concept of equally likely events in probability.
- (c) Two cards are drawn at random, from pack of 52 cards. Find the probability that one is a king and other is a queen.
- (d) When a binomial distribution does tend to become person distribution ?
- (e) Explain what is meant by regression coefficient.
- (f) Explain least squares principle.

- (g) What is minor of a square matrix ?  
(h) What is rank of a matrix ?  
(i) What is successive sampling ?  
(j) Give two merits of median.  
(k) Give two merits of random sampling.  
(l) Give two uses of Index numbers.

Let

$$A = \begin{vmatrix} 2 & -3 & -4 \\ 2 & 1 & 0 \\ -3 & 4 & -5 \end{vmatrix}. \quad \text{Find } |A|$$

### SECTION—B

**Note** :— Attempt any **TWO** long answer type questions.

Each question carries **10** marks and the total weightage is **20** marks.

2. Find the unknown frequencies in the following frequency distribution table. It is given that the arithmetic mean of these observations is 22, and the total number of observations is 20.

<b>Variable X</b>	15	18	20	24	28	30
<b>Frequency (f)</b>	2	3	7	—	—	2



3. A bag contains 6 white and 4 black balls and a second bag contains 4 white and 8 black balls. One of the bags is chosen at random and 2 balls are drawn from it at random. Find the chance that one is white and the other is black.
4. A certain hospital usually admits 50 patients per day. On the average, 3 patients in 100 require rooms provided with special facilities. On the morning of a certain day, it is found that there are three such rooms available. Assuming that 50 patients will be admitted, find probability that more than 3 patients will require such special rooms.
5. For a study related to the weight of kidneys (Y) and weight of heart (X) both measured in gms the two lines of regression are :

$$4X - 10Y + 1725 = 0 \text{ and } 5X - 6Y + 325 = 0.$$

- (i) Find the mean of two variables.
- (ii) Find the correlation between the two variables.
- (iii) Find the expected weight of heart for an individual whose kidney weight is 250 gm.
- (iv) If the standard deviation for kidney weight is 87.5 gm, find the standard deviation for the heart weight.

## SECTION—C

**Note** :— Attempt any **TWO** long answer types questions.  
Each question carries **10** marks and the total weightage is **20** marks.

6. The following data gives the sales (in thousands of tons) of a concern during the years 1995–2001. Assuming a parabolic trend in the sales, determine it. Also, estimate the possible sales during 2002.

Year	1995	1996	1997	1998	1999	2000	2001
Sales	7	9	13	20	19	17	15

7. Explain the concept of Index numbers and give its uses. Discuss time reversal and factor reversal test.
8. Solve the following system of equations, if consistent, using matrix inverse method.

$$x - 3y - 8z = -10$$

$$3x + y - 4z = 0$$

$$2x + 5y + 6z = 13$$

9. What is meant by simple random sampling and probability proportional to size sampling? Discuss the method of selecting the sample by stratified sampling.