

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

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

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.

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

SECTION—C

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

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

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.

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.