

**ST. JOSEPH’S UNIVERSITY, BENGALURU -27**

**B.Sc. (ECONOMICS) – II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

**ECS 2221: Statistics for Economics**

**(For 2022-23 batch students only)**

**Time: 2 Hours Max Marks: 60**

**This paper contains 2 printed pages and 3 parts**

**PART-A**

**Answer any 10 questions** **3 X 10 = 30**

1. Differentiate between Binomial and Normal Distribution.
2. Differentiate between correlation and regression with examples.
3. Two coins are tossed. Find the probability of getting both heads or both tails.
4. What are null and alternate hypotheses?
5. Explain the advantages and disadvantages of Geometric mean.
6. What do you mean by partition values?
7. Differentiate between Skewness and Kurtosis.
8. A bag contains 6 white and 4 black balls. One ball is drawn. What is the probability that it is white?
9. Mention the various properties of correlation coefficient.
10. Discuss the different methods of collecting primary data.
11. Define index numbers. Explain the uses of index numbers in Economics.
12. What is meant by the Mode of a distribution? Does it always exist? Give examples to illustrate your answer.

**PART - B**

 **Answer any 3 questions** **5 X 3 = 15**

1. What is a random experiment? Give examples.
2. Three identical boxes I, II, III contain 4 white and 3 red balls, 3 white and 7 red balls, and 2 white and 3 red balls respectively. A box is chosen at random and a ball is drawn out of it. If the ball is found to be white, what is the probability that Box II was selected?
3. For a certain frequency table with total frequency 150, the mean was found to be 56.47. But, while copying out the table, a typist left out two of the class frequencies, say, f3 and f5, so that the table is given in the following form. Find the values of f3 and f5.

| Weekly wages in Rs. (mid value) | 45 | 50 | 55 | 60 | 65 | 70 | 75 | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Frequency  | 5 | 48 |  f3 | 30 | f5 | 8 | 6 | 150 |

1. The mean of 5 observations is 4.4 and the variance is 8.24. If 3 of the observations are 4,6,9, find the other two.
2. Calculate Skewness and Kurtosis for the following distribution and comment on the nature of the distribution:

| Mid value (x) | 34.5 | 44.5 | 54.5 | 64.5 | 74.5 | 84.5 | 94.5 | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Frequency  | 2 | 3 | 11 | 20 | 32 | 25 | 7 | 100 |

**PART - C**

**Answer any 1 question** **15 X 1 = 15**

1. a. List any 5 properties of probability. **(5)**
2. State the difference between Type I and Type II error**. (5)**
3. A man purchases a lottery ticket, in which he may win the first prize of Rs. 10000 with probability .0001 or the second prize of Rs. 4000 with probability .0004. Find the expected value of him winning a prize**. (5)**
4. a. Given the following totals for 10 pairs of observations on two characters x and y, obtain the two regression equations and hence calculate the correlation coefficient:

∑x = 12, ∑y = 4, ∑x2 = 16.20, ∑y2 = 1.96, ∑xy = 5.2.

b. From the following data, calculate the price index number for current year by Laspeyre’s method and Paasche’s method:

| Items | Base year | Current year |
| --- | --- | --- |
| Quantity  | Price  | Quantity | Price  |
| A | 15 | 4 | 10 | 6 |
| B | 20 | 3 | 25 | 4 |
| C | 10 | 6 | 20 | 5 |
| D | 30 | 5 | 25 | 5 |

 **(8 + 7) = 15**