

Date:

Registration number:

ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU - 27

B.Sc. ECONOMICS - II SEMESTER

SEMESTER EXAMINATION: APRIL 2022

(Examination conducted in July 2022)

**ECS 2221 – Statistics for Economics**

Time - 2 hrs Max Marks - 60

This question paper contains 2 printed pages and 3 parts

**Part A**

**Answer any 10 questions (3** × **10 = 30)**

1. What is conditional probability? Explain using formulae.
2. Find the expected value of the random variable X, where X is the outcome when we roll a fair die.
3. What are the necessary conditions/assumptions of a random experiment?
4. What is the difference between a variable and an attribute? Give examples.
5. Find the A.M, G.M and H.M of the four numbers: 3, 6, 24 and 48.
6. What are the uses of measures of dispersion?
7. What is the S.D. of two observations 53 and 57?
8. Differentiate between the Moving Average method and Least Squares method.
9. Distinguish between exogeneous and endogenous variables with examples.
10. What is the difference between a null and alternate hypothesis? Explain with an example.
11. Describe the characteristics of a good questionnaire.

**Part B**

**Answer any 3 questions (5** × **3 = 15)**

1. There are 20 good bulbs and 2 defective bulbs in a packet. From that packet 2 bulbs are randomly taken without replacement. Find the probability of getting a good bulb in the first trial and a defective bulb in the second trial.
2. Differentiate between Binomial and Normal Distribution.
3. Calculate the coefficient of skewness for the following data by using quartiles:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 15 | 30 | 45 | 60 | 75 | 90 |
| No. of students | 180 | 160 | 130 | 100 | 65 | 20 | 5 |

1. If u + 3x = 5, 2y – v = 7 and the correlation coefficient of x and y is 0.12, find the correlation coefficient of u and v.

**Part C**

**Answer any 1 question (15** × **1 = 15)**

1. a. What are the properties of a normal distribution?

b. The median and mode of the following frequency distribution are known to be 27 and 26 respectively. Find the values of a and b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Values | 0-10 | 0-10 | 20-30 | 30-40 | 40-50 |
| Frequency | 3 | a | 20 | 12 | b |

c. Find the missing figures from the following table:

No. of obs. Mean Variance

Group I: --- 45 ----

Group II: 150 --- 144

Combined Group I and II: 250 51 130

(3 + 7 + 5) = 15

1. a. Find the regression of x on y from the following data:

∑ x = 24, ∑ y = 44, ∑ xy = 306, ∑ x2 = 164, ∑ y2 = 574, n = 4.

Find the estimated value of x, when y = 6.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | Base year | | Current year | |
| Quantity | Price | Quantity | Price |
| A | 30 | 10 | 50 | 12 |
| B | 15 | 8 | 25 | 10 |
| C | 20 | 6 | 30 | 6 |
| D | 10 | 4 | 20 | 6 |

(6 + 9) = 15