

Date:

Registration number:

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

M.A. ECONOMICS - II SEMESTER

SEMESTER EXAMINATION: APRIL 2022

(Examination conducted in July 2022)

**EC 8121 - Statistical Methods for Economists**

Time - 2 ½ hrs Max Marks - 70

This question paper contains 2 printed pages and three parts

**Part A**

**Answer any 5 questions 2** × **5 = 10**

1. Give an example of a continuous and a discrete variable
2. Consider two events A and B, given that P(A) =0.5 and P(B) =0.6 and P(AՈB),=0.3, find P(AUB).
3. List the sources of secondary data.
4. What are index numbers? What are the various price indices?
5. Find the Z value given that the population mean is 10 and sample mean is 8 and n is 16 and the standard deviation is 4.
6. What is type 2 error?
7. What is the expected value of X

|  |  |  |
| --- | --- | --- |
| x | 10 | -10 |
| P(X=x) | 0.7 | 0.3 |

**PART B**

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

1. Why is Fishers Index considered an ideal index? Discuss using an example.
2. At a school of 1200 people it is found a random sample of 40 people contains five who are left-handed. Find the 95% confidence limits for

a.The proportion of pupils in the school who are left-handed

b.The number of pupils in the school who are left-handed

1. One hundred measurements of a variate gave ,Could these measurements have come from a population with mean 1.5. Set up the alternate and the null hypothesis for the problem. Set up the alternate and the null hypothesis for the problem.
2. Calculate the coefficient of skewness and comment on the kurtosis 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. Write a note on correlation.

**Part C**

**Answer any 2 questions 15** × **2 = 30**

1. Solve the following:
2. Calculate the correlation coefficient from the following results:

n = 10, ∑ x = 140, ∑ y = 150, ∑ (x – 10)2 = 180, ∑ (y – 15)2 = 215, ∑ (x – 10) (y – 15) = 60.

1. Calculate mode from the following frequency distribution:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class limits | 1-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71 -80 | 81 - 90 | 91 - 100 |
| frequency | 8 | 15 | 25 | 20 | 16 | 10 | 6 | 17 | 23 | 7 |

(6 + 9) = 15

1. The yields of tomato plants grown using different types of fertiliser are given in table

below

|  |  |
| --- | --- |
|  | Yield (Kgs) |
| Fertiliser X | 3.5, 4.0, 3.8, 4.1, 4.4 |
| Fertiliser Y | 4.7, 5.0, 4.5, 5.3 ,4.6 |
| Fertiliser Z | 3.6, 3.9, 4.2, 4.1, 4.0 |

Is there any evidence that the fertilisers produce different yields? Construct a one-way analysis variance table for these results.

1. Find two regression equations (y on x) and (x and y) from the following data

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | 10 | 25 | 34 | 42 | 37 | 35 | 36 | 45 |
| y | 56 | 64 | 63 | 58 | 73 | 75 | 82 | 77 |