# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI - 600034 

B.A. DEGREE EXAMINATION - ECONOMICS

SECOND SEMESTER - APRIL 2022
16/17/18UEC2MCO2 - QUANTITATIVE METHODS IN ECONOMICS

Date: 18-06-2022
Dept. No. $\square$ Max. : 100 Marks
Time: 01:00 PM - 04:00 PM

## PART-A

Answer any FIVE Questions:

1) List down the Measures of Central Tendency.
2) Distinguish between equally likely events and mutually exclusive events.
3) State the probability density function of Poisson distribution. What are its properties?
4) Define the Classical Probability.
5) Define Null Hypothesis and Alternative Hypothesis.
6) Distinguish between Type I and Type II errors.
7) Write a note on Chi-Square test.

## PART -B

Answer any FOUR Questions:
8) Calculate Arithmetic Mean and Median for the following data:

| Income (Rs) | $0-5$ | $5-10$ | $10-15$ | $15-20$ | $20-25$ | $25-30$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 5 | 7 | 10 | 8 | 6 | 4 |

9) State and prove the Theorems of Probability.
10) Eight coins are tossed together 256 times. Find the expected frequencies of success (getting a head) and tabulate the result obtained.
11) Write short notes on the following:
a. Exhaustive event.
(2 marks)
b. Composite event.
(2 marks)
c. Null event.
(2 marks)
d. Dependant event.
(2 marks)
e. Complimentary event.
(2 marks)
12) Daily demand for transistors is having the following probability distribution:

| Demand: | 1 | 2 | 3 | 4 | 5 | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Probability: | 0.10 | 0.15 | 0.20 | 0.25 | 0.18 | 0.12 |

Determine the daily demand for transistors. Also obtain the variance of the demand.
13) State the procedure for testing the significance using $Z$ test for large samples.
14) In a sample survey of public opinion, answer to the questions:
(a) Do you drink Pepsi?
(b) Are you in favor of local option on sale of Pepsi?

The collected answers are tabulated below:

|  | Yes | No | Total |
| :--- | :---: | :---: | :---: |
| Yes | 56 | 31 | 87 |
| No | 18 | 6 | 24 |
| Total | 74 | 37 | 111 |

Can you infer whether the local option on the sale of Pepsi is independent on individual drink?
[Hint: $\chi^{2}{ }_{\alpha 0.05,1 \mathrm{~d}: \mathrm{f}}=3.411$ ]

## PART-C

Answer any TWO Questions:
( $2 \times 20=40$ marks $)$
15) Elaborate the functions, limitations, and distrust of Statistics.
16) A) State the various properties of Normal Distribution.
B) What is the probability that a standard normal variate Z will be?
(i) Greater than 1.09 .
(ii) Less than -1.65 .
(iii)Lying between -1.00 and 1.96.
(iv)Lying between 1.25 and 2.75?

| Area: | 1.00 | 1.09 | 1.25 | 1.65 | 1.96 | 2.75 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Z: | 0.34143 | 0.36214 | 0.39435 | 0.45053 | 0.47500 | 0.49702 |

17) Examine in detail the procedure of Testing of Hypothesis.
18) A) Explain the procedure for conducting ANOVA One way test.
B) Four samples are given below:

| A | B | C | D |
| :---: | :---: | :---: | :---: |
| 8 | 12 | 18 | 13 |
| 10 | 11 | 12 | 9 |
| 12 | 9 | 16 | 12 |
| 8 | 14 | 6 | 16 |
| 7 | 4 | 8 | 15 |

Using ANOVA one way procedure test the equality of their means.
Hint: (F $\alpha$, v d:f = 3.24)

