

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.A. DEGREE EXAMINATION – ECONOMICS

THIRD SEMESTER – APRIL 2023

ST 3902 – STATISTICS FOR ECONOMISTS

Date: 09-05-2023

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

SECTION- A

Answer ALL the following:

(10 X 2 = 20)

1. Define measures of central tendency.
2. What is correlation coefficient?
3. Define independent events.
4. What are the parameters of normal distribution?
5. Define a simple hypothesis.
6. What is the test statistic for equality of means in large sample test?
7. Write the components of time series.
8. Define index numbers.
9. Define Optimal solution of a Linear Programming Problem.
10. State any two methods of obtaining I.B.F.S of a transportation problem.

SECTION- B

Answer any FIVE of the following:

(5 X 8 = 40)

11. Explain the various measures of dispersion.
12. Explain briefly the various methods of measuring correlation between two variables.
13. Three ships namely A, B, and C sail from India to Africa. If the ratio of the ships reaching safely is 2: 5, 3: 7 and 6: 11 respectively, then find the probability of all of them arriving safely.
14. A random variable X has the following probability mass function.

X	0	1	2	3	4	5	6
P(X=x)	k	3k	5k	7k	9k	11k	13k

- (a) Find k.
- (b) Evaluate $P(X < 4)$, $P(X \geq 5)$ and $P(3 < X \leq 6)$.

15. What are the main characteristics of Poisson distribution? Under what conditions is Poisson distribution used?
16. The customer accounts of a certain departmental store have an average balance of Rs.120 and a standard deviation of Rs. 40. Assuming that the account balances are normally distributed, find what proportion of accounts is (i) over Rs.150, (ii) between Rs.100 and Rs.150 and (iii) between Rs.60 and Rs.90?
17. Explain the components of time series.

18. In a class of 50 students, 28 opted for NCC, 30 opted for NSS and 18 opted both NCC and NSS. One of the students is selected at random. Find the probability that

- (i) The student opted for NCC but not NSS.
- (ii) The student opted for NSS but not NCC.
- (iii) The student opted for exactly one of them.

SECTION – C

Answer any TWO of the following:

(2 X 20 = 40)

19. (i) Differentiate between regression and correlation.

(ii) Explain how to estimate the values of X and Y using the two regression equations.

(10 + 10)

20. (i) State and prove the addition theorem of probability.

(ii) State and prove Booles' Inequality

(10 + 10)

21. Obtain the initial solution for the following transportation problem.

		Destination			Supply
		A	B	C	
Sources	1	2	7	4	5
	2	3	3	1	8
	3	5	4	7	7
	4	1	6	2	14
Demand		7	9	18	

22. Explain the Laspeyre's, Paasche's, and Fisher's Methods of Calculating Index Numbers using suitable examples.

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