Shree Narayana College of Commerce

Bachelor of Commerce

Semester – 6   Subject Code – CC 310

Academic Year – 2024-25   Subject –Statistics

Unit-1 : Testing of Hypothesis & Large Sample Test

Q-1   (a) Define statistical hypothesis. With reference to it define the following terms:
 (1) Null and Alternate hypothesis
 (2) Type-I and Type-II errors

(b) In one particular area, a sample of 1000 individuals found that 600 of them preferred brand A toothpaste, while another sample of 1500 individuals showed that 600 of them preferred brand B toothpaste. Can we conclude that both brands of toothpaste are equally popular in both regions? (Critical Value is 1.96)

Unit-2: Decision Theory

Q-2   (a) The cost price of an items is Rs.7 and its selling priceRs.12. The unsold items can be returned at Rs.2 at the end of the day. The probability distribution of daily demand is as follows:

Demand	0	1	2	3	4
Probability	0.1	0.2	0.2	0.3	0.2

Find Maximum EMV

(b) From the following matrix find out Laplace and Hurwitz's principle best strategy. (α=0.5)

	A_1	A_2	A_3	A_4
S_1	15	5	7	10
S_2	-2	6	9	8
S_3	3	9	10	11
S_4	4	0	1	-4

Unit-3 : Game Theory

Q-3   (a)   What is game theory? Give assumptions of the game.

(b)   Solve the following game:

	Player B			
Player A	B_1	B_2	B_3	B_4
A_1	8	10	-14	-10
A_2	2	5	-2	-1
A_3	20	6	12	15

Unit-4: Matrix Algebra

Q-4   (a) Define the following terms:
 (i)   Identity Matrix   (ii) Symmetric Matrix   (iii) Diagonal Matrix
 (iv)   Skew-Symmetric Matrix   (v) Square Matrix

(b)

If A=$\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, then Find A^2-4A-5I=0

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