Reg.No: | | | | | | | |

SNS College of Technology, Coimbatore-35.

(An Autonomous Institution)
Internal Assessment -I
Academic Year 2023-2024 (Even)
Fourth Semester
(Common to Agri, Auto, Food Technology, Mech)

B

19MAT202 – STATISTICS AND NUMERICAL METHODS
(REGULATION 2019)

Time: 1.30 Hours **Maximum Marks: 50**

			CO	Blooms
		PART – A (5 x 2 = 10 MARKS) ANSWER ALL QUESTIONS		
1.		What do you mean by one tailed and two tailed tests?	CO1	(Und)
2.		State null and alternative hypothesis.	CO1	(Rem)
3.		Write the application of Chi-square- test.	CO1	(Und)
4.		Define Analysis of variance.	CO2	(Rem)
5.		Mention the assumptions of design of experiments?	CO2	(Rem)
		PART –B (13+13+14 = 40 MARKS) ANSWER ALL QUESTIONS		
6.	a) i)	A simple sample of heights of 6400 English men has a mean of 170 cm. and a S.D of 6.4 cm, while a simple sample of heights of 1600 Americans has a mean of 172 cm. and a S.D of 6.3 cm. Do the data indicate that Americans are the average taller than the English men?	CO1	(App) (7)
	ii)	40 People were attacked by a disease and only 36 survived. Will you reject the hypothesis that the survival rate, if attacked by this disease, is 85% in favor of the hypothesis that it is more at 5% level of significance.	CO1	(App) (6)

(OR)

b) i) A random sample of 10 boys had the following I.Q's 70,120,110,101,88,83,95,98,107,100. Do these data support the assumption of a population mean I.Q's of 100? Find a reasonable range in which most of the mean I.Q's values of sample of 10 boys lie. CO1 (App) (6)

ii) In an experimental on immunization of cattle from tuberculosis the following research were obtained. CO1 (Ana) (7)

	Affected	Not affected
Inoculated	12	26
Not Inoculated	16	6

Calculate $\psi 2$ and discuss the effect of vaccine in controlling susceptibility to tuberculosis.

7. a) The following table shows the lives in hours of four brands of electric lamps CO2 (Ana) (13)

A	1610	1610	1650	1680	1700	1720	1800	
B	1580	1640	1640	1700	1750			
C	1460	1550	1600	1620	1640	1660	1740	1820
D	1510	1520	1530	1570	1600	1680		

Illustrate, Analysis of variance and test the homogeneity of the mean lives of the 4 brands of lamps.

(OR)

b) Three different machines are used for a production. On the basis of the outputs. Set up a one way ANOVA table and test whether the machines are equally effective. CO2 (Ana) (13)

Machine I	Machine II	Machine III
10	9	20
15	7	16
11	5	10
10	6	14

8. a) The random samples were drawn from two normal populations and the following results were obtained. CO1 (App) (14)

Sample I 16 17 18 19 20 21 22 24 26 27

Sample II 19 22 23 25 26 28 29 30 31 32 35 36

Obtain estimates of the variances of populations and test whether the two populations have the same variances.

(OR)

b) To study the performance of three detergents and three different water temperature the following 'whiteness' readings were obtained with designed equipment. CO2 (Ana) (14)

Water temp.	Detergent A	Detergent B	Detergent C
Cold water	57	55	67
Warm water	49	52	68
Hot water	54	46	58

Perform a two way analysis of variance, using 5% level of significance.

Rem/Und: Remember/ Understand **App:** Apply **Ana:** Analyze **Eva:** Evaluate

Cre: Create