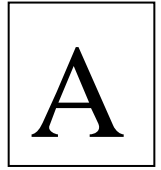Reg.No:

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)

A

19MAT202 – STATISTICS AND NUMERICAL METHODS
(REGULATION 2019)

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

	PART – A (5 x 2 = 10 MARKS) **ANSWER ALL QUESTIONS**	**CO**	**Blooms**
1.	Compare Type I with Type II error and give an example.	CO1	(Und)
2.	Mention the various steps involved in testing of hypothesis.	CO1	(Rem)
3.	Write the application of F- test.	CO1	(Und)
4.	Define Analysis of variance.	CO2	(Rem)
5.	What are the three basic principles of design of experiments?	CO2	(Rem)

PART –B (13+13+14 = 40 MARKS)
ANSWER ALL QUESTIONS

6. a) i) The Mean breaking strength of the cables supplied by a manufacturer is 1800 with an SD of 100. By a new technique in the manufacturing process, it is claimed that the breaking strength of the cable has increased. To test this claim a sample of 50 cables is tested and is found that the mean breaking strength is 1850. Can we support the claim at 1% level of significance.   CO1 (App) (6)

   ii) In a large city A, 20% of a random sample of 900 school boys had a slight physical defect. In another large city B, 18.5% of a random sample of 1600 school boys had the same defect. Is the difference between the proportions significant?   CO1 (App) (7)

(OR)

b) i) A sample of two types of electric bulbs were tested for length of life   CO1   (App)
(7)

and the following data were obtained:

Sample	Size	Sample mean	SD
I	8	1134	35
II	7	1024	40

Test at 5% level of significance.

ii) The number of automobile accidents per week in a certain   CO1   (App)
(6)

community are as follows: 12, 8, 20, 2, 14, 10, 15, 6, 9, 4. Are these frequencies in agreement with the belief that accident conditions were the same during this 10 week period.

7. a) A completely randomized design experiment with 10 plots and 3   CO2   (Ana)
(13)

treatments gave the following results:

Plot No.	1	2	3	4	5	6	7	8	9	10
Treatment:	A	B	C	A	C	C	A	B	A	B
Yield	5	4	3	7	5	1	3	4	1	7

Analysis the result for treatment effects.

(OR)

b) A textile company appoints four sales man A,B,C and D and   CO2   (Ana)
(13)

observes their sales in three months. The figures (in lakhs) are given in the following table.

Months	Sales man			
	A	B	C	D
October	36	36	21	35
November	28	29	31	32
December	26	28	29	29

   i) Do the salesman significantly differ in performance?

   ii) Is there significant difference between the months?

8. a) Two random samples gave the following results:

CO1 (App) (14)

Sample	Size	Sample Mean	Sum of square of deviations from the mean
1	10	15	90
2	12	14	108

Examine whether the samples come from the same normal population at 5% level of significance.

(OR)

b) A company appoints 4 salesmen A,B,C and D and observes their sales in 3 seasons: Summer, Winter and Monsoon. The figures (in lakhs of Rs.) are given in the following table.

CO2 (Ana) (14)

Season	Salesmen			
	A	B	C	D
Summer	45	40	38	37
Winter	43	41	45	38
Monsoon	39	39	41	41

i) Do the salesmen differ significantly in performance?

ii) Is there any significant difference between seasons?

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

Cre: Create