ANALYSIS OF VARIANCE AND DESIGN OF EXPERIMENTS

B. Sc. IInd Year, Paper- III

Long Answer Type Questions.

1. Explain the term 'Analysis of Variance'. Give a complete analysis of one-way classification.

2. What is analysis of variance? Give a complete analysis of two-way classified data.

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

Seasons	Salesmen			
	A	B	C	D
Summer	36	36	21	35
Winter	28	29	31	32
Monsoon	26	28	29	29

Carry out an analysis of variance.

4. Give the layout and procedure of analysing a completely randomised design.

5. Explain clearly the difference between CRD and RBD. Also give the ANOVA Table for both designs.

6. Discuss LSD and how do you make analysis of variance.

7 Carry out the analysis of variance of following design.

A 78	048	B64	056	D 60	C 83
B 72	060	A96	C92	B72	D68
C 88	B68	D64	048	056	C84
052	A88	052	A88	060	D68

8. Analyse the following design and comment.

A 5	C 13	D7	B 11
B 12	A6	D8	C 13
D7	C 15	A 6	B 12
C 14	A 8	B 13	D9

9. Estimate the missing value (x) and then analyse the the design.

A 115	C 122	B 113	D 111
C 121	B 115	D 109	A x
B 125	D 113	A 108	C 124
D 115	A 110	C 130	B 120

10 Complete the following ANOVA Table

S V	dF	SS	MSS	VR
Rows	—	72	—	2
Columns	—	—	36	—
Treatment	—	180	—	—
Error	—	—	12	
Total	—	—	—	

11. Explain Yates's method of computing totals of main effects and interactions in 2^2 factorial exp. and give the complete analysis of variance of 2^3 factorial exp.

12. What do you mean by factorial exp.? Give in detail the analysis of 2^3 factorial exp. conducted in a R.B.D.

Short Answer Type Questions

1. Explain (a) Simple effects, (b) Main effects and (c) interaction effects.
2. What are the advantages of factorial exp.
3. Write 2 factor interaction in a 2^3 factorial exp.
4. Differentiate between symmetrical and asymmetrical factorial exp.
5. Explain the principles of experimental design
6. Describe the procedure of analysing CRD.
7. Give the advantages of RBD over CRD.
8. Show that for a two-way classified data.

$$TSS = SSA + SSB + SSE$$

7. Explain replication and randomisation.
8. explain local control.
9. Give the layout of CRD and RBD.
10. Describe LSD
11. Why a 2x2 LSD is not possible? explain with example
12. Write advantages and disadvantages of R.B.D
13. Give the layout of LSD
14. State the assumptions for analysis of variance technique.
15. Distinguish between one-way and two-way classifications
16. Write the models in case of one-way and two-way classifications