

B.Sc.Sem-VI, Examination- 27 AUG 2020

: નોંધ :

૧. દરેક પ્રશ્નનો [a] અથવા [a(i)] અને [a(ii)] જ લખવાના રહેશે.
 ૨. પ્રશ્ન : વ[a] અથવા વ[a(i)] અને વ[a(ii)] તથા ર[a] અથવા ર[a(i)] અને ર[a(ii)] ના 14 માર્ક્સ ના બદલે ૧૮ માર્ક્સ રહેશે.
 ૩. પ્રશ્ન : ડ[a] અથવા ડ[a(i)] અને ડ[a(ii)] તથા ણ[a] અથવા ણ[a(i)] અને ણ[a(ii)] ના 14 માર્ક્સ ના બદલે ૧૭ માર્ક્સ રહેશે.
 ૪. દરેક પ્રશ્નનો પ્રશ્ન નં વ(b), પ્રશ્ન નં ર(b), પ્રશ્ન નં ડ(b) તથા પ્રશ્ન નં ણ(b) (ટુંકા પ્રશ્નો) વિદ્યાર્થીએ લખવાના નથી.

Q1 A Describe the fixed effect mathematical model for ANOVA testing in one way classification. Stating clearly- 14

- (i) The assumptions (ii) The hypothesis to be tested
 (iii) The test statistics to be used and (iv) ANOVA Table

OR

Q1 A a) What are the three basic principle of design of experiment. Explain in brief. 7

b) Distinguish between fixed effect model and random effect model in the analysis of variance. 7

Q1 B Select the correct answer. 4

i) An ANOVA obtained from 5 samples, where each samples contains 9 observations. The degrees of freedom for the critical value of F are

- A 5 & 9 C 4 & 8
 B 45 & 4 D 4 & 40

ii) The ANOVA method is used to test the equality of more than two population means at a time the test statistic is used in this method is known as:-----

- A t - test C χ^2 - test
 B F - test D Z - test

iii) In a completely randomized block design all the treatments are randomly selected.

- A True C False
 B Not decided D None

iv) The mean square error is the sum of squares divided by the ...

- A total no. of observations C Its degrees of freedom
 B Its degrees of freedom-1 D None of the above

Q2 A Give the complete analysis of RBD. Explain the situation when it is used. State its Merits and demerits. 14

OR

Q2 A a) Outline the various steps in carrying out the ANOVA of Latin Square Design. 7

- b) Asset of data involving four tropical feed stuffs A,B,C,,D tried on 20 7 chicks are treated alike in all respects except the feeding treatments and each feeding treatment is given to 5 chicks. Analyse the data.

Feed	Gain in weight				
A	45	39	32	11	42
B	51	102	20	79	53
C	32	87	71	85	82
D	159	127	159	75	144

$$[F(3,16)=3.24]$$

Q2 B Select the correct answer.

4

- i) 2x2 LSD does not exist.

A True C False
B Partial true D None of the above

- ii) In LSD the no. of treatments ,rows and columns are.....

A Seldom equal C Usually equal
B equal D Unequal

- iii) For RBD of 5 treatments and 4 blocks degrees of freedom for error is_____.

A 20 C 12
B 16 D None of the above

- iv) In LSD with 5 x 5 observations for two missing yield degrees of freedom for error is

A 12 C 10
B 25 D 16

Q3 A Obtain the formula for estimating two missing yield in two different block of 14 randomized block design. Also state the ANOVA of such design.

OR

Q3 A a) For the following data, identify the design, estimate the missing yield 7 and analyze the data completely.

B 23	A 17	C 29
A 16	C (x)	B 16
C 24	B 18	A 12

$$[F(2,1)=200]$$

- b) What is Incomplete Block Design? Define BIBD,give its example. 7
State any two parametric relationship of BIBD.

Q3 B Select the correct answer.

3

- i) Missing Plot Technique can't be apply in case of CRD.

A True C False
B Partial true D None of the above

- ii)In balanced incomplete block design one of the condition is

A $v(\lambda-1) = k(r-1)$ C $r(v-1) = \lambda(k-1)$
B $\lambda(v-1) = r(k-1)$ D $k(v-1) = r(\lambda-1)$

iii) In case of symmetrical BIBD

- | | | | |
|---|------------|---|-------------------|
| A | $vr = bk$ | C | $br = vk$ |
| B | Both A & B | D | None of the above |

Q4 A In a certain 2^3 factorial experiment, there are 3 factors- N and P & K. write down all treatment combinations. Derive the formula for estimating- 14

- Main effect of N, P & K
- Joint effect of NP, NK, PK & NPK
- ANOVA of the design

OR

Q4 A a) What is confounding? Define total and partial confounding. Giving illustration of each. 7

b) Explain Yate's Method for 2^3 factorial experiments. 7

Q4 B Select the correct answer. 3

i) The no. of times each experimental unit is observed in a factorial design is known as

- | | | | |
|---|-------------|---|------------------------|
| A | Replication | C | Experimental condition |
| B | Factor | D | None of the above |

ii) Treatment contrast confounded same in all the replication then it is known as

- | | | | |
|---|---------------------|---|-------------------|
| A | Partial confounding | C | Total confounding |
| B | Confounding | D | None of the above |

iii) Different treatment contrast confounded in different replication then it is known as

- | | | | |
|---|-------------------|---|---------------------|
| A | Total confounding | C | Partial confounding |
| B | Confounding | D | None of the above |