Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Agriculture

End Sem (Odd) Examination Dec-2019

AG3CO23 Statistical Methods

Programme: B.Sc. (Ag.) Branch/Specialisation: Agriculture

Duration: 3 Hrs. **Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Science of statistics deal with the methods of - **1**

(a) Collection (b) Analysis

(c) Interpretation (d) All of these

ii. Graphical representation of data is- **1**

(a) Attractiveness and effective

(b) Visible and clear at a glance

(c) Comparison possible

(d) All of these

iii. Degree of doubt is measured in terms of – **1**

(a) Probability (b) Event

(c) Outcomes (d) None of these

iv. Probability of troughing a head in a lot of a coin is – **1**

(a) 1/2 (b) 2/4 (c) 1/3 (d) 1/4

v. Range of Correlation Coefficient is ..... to ..... – **1**

(a) +1 to +2 (b) – 1 to + 1 (c) -1 to +2 (d) +1 to +2

vi. Karl Pearson developed method to measure – **1**

(a) Mean (b) Mode

(c) Median (d) Correlation coefficient

vii. Chi-square test is used to test the – **1**

(a) Qualitative traits (b) Quantitative traits

(c) Both (a) and (b)

(d) None of these

viii. Formula of Chi-square test is **1**

(a) $(O - E)^2/E$ (b) $O^2 - E^2/E$

(c) $O^2 - E^2/E+2$ (d) $(OE)^2/E$

P.T.O.

ix. Sample is expected to be representative of **1**

(a) Whole population (b) 50% population

(c) 75% population (d) 90% population

x. The aim of sampling is that the sample may be able to give – **1**

(a) Maximum information about the population with minimum effort

(b) Maximum information about the mean of population

(c) Mode of population

(d) Median of population

Q.2 i. Write merits of Arithmetic Mean **2**

ii. Find out the Arithmetic Mean of following data: **6**

Variable (X)	Frequency (f)
3	3
5	10
7	13
9	15
11	20
13	13
15	12
17	10
19	4

OR iii. Find out the Arithmetic Mean of following data: **6**

Class interval	Frequency (f)
0-10	4
10-20	6
20-30	8
30-40	7
40-50	5

Q.3 i. Define probability. **2**

ii. Write binomial distribution in brief. **6**

OR iii. Write the theorem of addition of probability in brief. **6**

Q.4 i. Who has developed correlation coefficient? **1**

ii. Define correlation. **2**

iii. Calculation coefficient of correlation between marks obtained by 8 students in Mathematics and Statistics. **5**

Student	A	B	C	D	E	F	G	H
Mathematics	25	30	32	35	37	40	42	45
Statistics	8	10	15	17	20	22	24	25

OR iv. Write the difference between correlation and regression. **5**

Q.5 i. Why critical difference is calculated in agricultural experiments? **2**

ii. The data in following table showing that Flower Colour is Independent of shape of leaf: **6**

Flower colour	Shape of leaf		Total
	Broad leaf	Narrow leaf	
White	99	36	135
Red	20	05	25
Total	119	41	160

Test it by using Chi-Square and also interpret the result

(Table value of Chi-square at 5% level of significance and 01 d.f. = 3.841)

OR iii. (iii) In an experiment on Immunization of cattle from Tuberculosis, following results were obtained: **6**

	Died	Survived	Total
Inoculated	12	26	38
Un - Inoculated	16	06	22
Total	28	32	60

Examine the effect of vaccine in controlling the disease

(Table value of Chi-square at 5% level of significance and 01 d.f. = 3.841)

Q.6 Write short note on any two:

i. Sampling methods **4**

ii. Random sampling **4**

iii. Types of Population **4**

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Marking Scheme
AG3CO23 Statistical Methods

Q.1	i.	Science of statistics deal with the methods of – (d) All of these		**1**
	ii.	Graphical representation of data is- (d) All of these		**1**
	iii.	Degree of doubt is measured in terms of – (a) Probability		**1**
	iv.	Probability of troughing a head in a lot of a coin is – (a) 1/2		**1**
	v.	Range of Correlation Coefficient is ..... to ..... – (b) – 1 to + 1		**1**
	vi.	Karl Pearson developed method to measure – (d) Correlation coefficient		**1**
	vii.	Chi-square test is used to test the – (a) Qualitative traits		**1**
	viii.	Formula of Chi-square test is (a) $(O - E)^2/E$		**1**
	ix.	Sample is expected to be representative of (a) Whole population		**1**
	x.	The aim of sampling is that the sample may be able to give – (a) Maximum information about the population with minimum effort		**1**
Q.2	i.	Merits of Arithmetic Mean	(0.5 mark*4)	**2**
	ii.	Find out the Arithmetic Mean of following data		**6**
		(As per explanation)	6 marks	
OR	iii.	Find out the Arithmetic Mean of following data:		**6**
		(As per explanation)	6 marks	
Q.3	i.	Define probability. (As per answer)	2 marks	**2**
	ii.	Binomial distribution in brief.(As per explanation)	2 marks	**6**
OR	iii.	Theorem of addition of probability in brief.		**6**
		(As per explanation)	6 marks	
Q.4	i.	Developed correlation coefficient	1 mark	**1**
	ii.	Define correlation. (As per answer)	2 marks	**2**
	iii.	Calculation coefficient of correlation between marks obtained by 8 students in Mathematics and Statistics. (As per explanation)	5 marks	**5**
OR	iv.	Five difference between correlation and regression.	(1 mark*5)	**5**
Q.5	i.	Difference is calculated in agricultural experiments (As per answer)	2 marks	**2**
	ii.	The data in following table showing that Flower Colour is Independent of shape of leaf: (As per explanation)	6 marks	**6**
OR	iii.	(iii) In an experiment on Immunization of cattle from Tuberculosis, following results were obtained: (As per answer)	6 marks	**6**
Q.6		Write short note on any two:		
	i.	Sampling methods (Any four methods)	(1 mark*4)	**4**
	ii.	Random sampling (As per explanation)	4 marks	**4**
	iii.	Types of Population (4 Types)	(1 mark*4)	**4**

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