Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Ag.) Agricultural Economics/Genetics & Plant Breeding/Horticulture/Agronomy/Agricultural Entomology/Plant Pathology/Agricultural Extension/ Soil Science & Agricultural Chemistry) (First Semester) EXAMINATION, 2021-22

AGRICULTURAL STATISTICS

Paper Code				
AS	5	0	0	1

Questions Booklet Series
C

Time : 1:30 Hours] [*Maximum Marks : 100*

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 60 questions. Examinee is required to answer any 50 questions in the OMR Answer-Sheet provided and not in the question booklet. If more than 50 questions are attempted by student, then the first attempted 50 questions will be considered for evaluation. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 60 प्रश्न हैं। परीक्षार्थी को किन्हीं 50 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। यदि छात्र द्वारा 50 से अधिक प्रश्नों को हल किया जाता है तो प्रारम्भिक हल किये हुए 50 उत्तरों को ही मूल्यांकन हेतु सम्मिलित किया जाएगा। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page) (शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. Test of hypothesis $H_0 : \mu = 1500$ against $H_1 : \mu \neq 1500$ leads to :

(A) One-sided lower tailed test

(B) One-sided upper tailed test

(C) Two-tailed test

(D) All of the above

2. Degree of freedom for statistic-χ^2 in case of contingency table of order (4 × 3) is :

(A) 4

(B) 3

(C) 12

(D) 6

3. Equality of two population variances can be tested by :

(A) *t*

(B) F

(C) χ^2 (Chi-square)

(D) None of the above

4. As the sample size increases critical value of *t* :

(A) increases

(B) decreases

(C) no effect

(D) None of the above

5. Level of significance is related to :

(A) Type I error

(B) Type II error

(C) Power function

(D) Operating characteristic function

6. If correlation coefficient $\rho = 0$, the lines of regression are :

(A) Coincident

(B) Parallel

(C) Perpendicular to each other

(D) None of the above

7. Scatter diagram gives idea about :

(A) Functional relationship

(B) Regression model

(C) Distribution of error

(D) None of the above

8. If 5 is added to each of the value of X and Y, the regression coefficient is :

(A) increased by 5

(B) reduced by 5

(C) increased by 25

(D) not changed

9. The rank correlation was given by :

(A) Fisher

(B) Galton

(C) Pearson

(D) Spearman

10. The unit of correlation coefficient is :

(A) Percent

(B) Meter

(C) Non-existing

(D) None of the above

11. The range of partial correlation coefficient is :

(A) 0 to 1

(B) –1 to 1

(C) 0 to ∞

(D) $-\infty$ to ∞

12. Replication in an experiment means :

(A) number of blocks

(B) total number of treatments

(C) number of experimental units

(D) the number of times a treatment occurs in an experiment

13. Local control in experimental design is meant to :

(A) increase the efficiency of the design

(B) reduce experimental error

(C) form homogeneous block

(D) All of the above

14. Randomization is a process in which the treatments are allocated to the experimental units :

(A) with equal probability

(B) in a sequence

(C) depends on investigator

(D) None of the above

15. The experiments in which the treatments are allocated to experimental units through a random process are categorized as :

(A) Completely randomized design

(B) Partially randomized design

(C) Randomized design

(D) All of the above

16. In a complete randomized block design with 5 treatments and 4 replications, the error degree of freedom will be :

(A) 20

(B) 15

(C) 5

(D) 4

17. Error sum of squares in CRD as compared to RBD using same conditions and material is :

(A) more

(B) less

(C) equal

(D) None of the above

18. Large size plots receiving the treatments in a split plot design are called :

(A) Whole plot

(B) Subplot

(C) Main plot

(D) None of the above

19. In a Latin square design number of treatments, rows and columns is :

(A) all different

(B) not specified

(C) investigator's will

(D) equal

20. The main advantage of systematic sampling is :

(A) Cheap

(B) Simple

(C) Both (A) and (B)

(D) Neither (A) nor (B)

21. If all units of a population are surveyed, it is called :

(A) Census

(B) Restricted sampling

(C) Purposive sampling

(D) Subjective sampling

22. Simple random sampling can be drawn with the help of :

(A) Chit method

(B) Random number table

(C) Roulette wheel

(D) All of the above

23. The discrepancies between sample estimate and population parameter is termed as :

(A) human error

(B) sampling error

(C) non-sampling error

(D) No error

24. An estimator can possess :

(A) a fixed value

(B) any value

(C) any positive constant

(D) None of the above

25. In usual notation, the sampling fraction is :

(A) $\frac{N}{n}$

(B) $\frac{1}{N}$

(C) $\frac{n}{N}$

(D) $\frac{1}{n}$

26. The errors due to faulty planning of surveys are categorised as :

(A) non-sampling error

(B) sampling error

(C) non-response

(D) None of the above

27. Stratified sampling belongs to the category of :

(A) Judgement sampling

(B) Subjective sampling

(C) Non-random sampling

(D) Controlled sampling

28. Which of the following is non-probability sampling ?

(A) Haphazard sampling

(B) Judgement sampling

(C) Convenience sampling

(D) All of the above

29. What sampling design is most appropriate for cluster sampling ?

(A) Simple random sampling with replacement

(B) Simple random sampling without replacement

(C) Stratified random sampling

(D) Quota sampling

30. The magnitude of standard error of an estimate is an index of its :

(A) Accuracy

(B) Efficiency

(C) Precision

(D) None of the above

31. If the 10 and 30 are lower and upper limit of a class respectively, the midpoint of the class is :

(A) 25

(B) 20

(C) 10

(D) 30

32. A frequency distribution can be :

(A) discrete

(B) continuous

(C) Both (A) and (B)

(D) None of the above

33. For a good classification, the class should be :

(A) Mutually exclusive

(B) Exhaustive

(C) Either (A) or (B)

(D) Both (A) and (B)

34. A straight line in a graph indicates the :

(A) Trend

(B) Ogive

(C) Frequency polygon

(D) None of the above

35. In a bar diagram, the bar is :

(A) Zig-zag

(B) Vertical

(C) Slanting

(D) Horizontal

36. The arithmetic mean of n natural numbers from 1 to n is :

(A) $\frac{(n + 1)}{2}$

(B) $\frac{n (n + 1)}{2}$

(C) n^2

(D) None of the above

37. Unimodal distribution has number of modes :

(A) any number

(B) one

(C) more than one

(D) two

38. Extreme value has no effect on :

(A) Standard deviation

(B) Mean

(C) Median

(D) None of the above

39. Sum of the absolute deviations about median is :

(A) Zero

(B) One

(C) Maximum

(D) Minimum

40. The average of squared deviations from mean is called :

(A) Variance

(B) Median deviation

(C) Range

(D) None of the above

41. Probability can never be more than :

(A) 0

(B) 2

(C) 1

(D) None of the above

42. The probability of occurrence of A and B simultaneously is :

(A) P (A + B)

(B) $P (A \cap B)$

(C) P (A) + P (B)

(D) None of the above

43. If X and Y are independent random variables, then :

(A) E (XY) = 0

(B) E (XY) = E (X) E (Y)

(C) E (XY) = 1

(D) None of the above

44. Which one is discrete distribution ?

(A) Poisson

(B) Normal

(C) *t*

(D) F

45. Student's *t*-distribution was given by :

(A) R. A. Fisher

(B) G. W. Snedecor

(C) W. S. Gosset

(D) None of the above

46. The relation between the mean and variance of Poisson distribution :

(A) Mean < Variance

(B) Mean > Variance

(C) 2 Mean = Variance

(D) Mean = Variance

47. F-distribution was given by :

(A) G. W. Snedecor

(B) W. S. Gosset

(C) Spearman

(D) All of the above

48. The mean of standard normal variate is :

(A) 1

(B) 0

(C) –1

(D) None of the above

49. The range of *t*-distribution is :

(A) $-\infty$ to 0

(B) 0 to ∞

(C) $-\infty$ to ∞

(D) None of the above

50. $z_1, z_2, ..., z_n$ are i.i.d. standard normal variate, then distribution of $\sum_{i=1}^{n} z_i^2$ is :

(A) χ^2 with n d.f.

(B) χ^2 with $(n-1)$ d.f.

(C) F-distribution

(D) None of the above

51. Chi-square (χ^2) distribution is useful to test :

(A) Independence of attributes

(B) Equality of two variances

(C) Equality of two means

(D) None of the above

52. A wrong decision about null hypothesis leads to :

(A) Two kinds of error

(B) One kind of error

(C) No error

(D) None of the above

53. An estimator is known to be the best if its distribution is :

(A) Continuous

(B) Discrete

(C) Concentrated about true parameters

(D) None of the above

54. Bias of an estimator can be :

(A) Positive

(B) Negative

(C) Either (A) or (B)

(D) Neither (A) nor (B)

55. Least square method is a device to obtain :

(A) Best Linear Unbiased Estimator (BLUE)

(B) Biased Estimator

(C) Sufficient Estimator

(D) None of the above

56. An interval estimate is best when it is :

(A) Widest

(B) Shortest

(C) Either (A) or (B)

(D) Neither (A) nor (B)

57. The theory of testing parametric hypothesis was first originated by :

(A) Fisher

(B) Snedecor

(C) Spearman

(D) Neyman

58. The hypothesis which is under test for possible rejection is called :

(A) Alternative hypothesis

(B) Null hypothesis

(C) Either (A) or (B)

(D) Neither (A) nor (B)

59. Whether a test is one-sided or two-sided depends on :

(A) Simple hypothesis

(B) Null hypothesis

(C) Composite hypothesis

(D) Alternative hypothesis

60. Paired *t*-test is applicable when observations in two samples are :

(A) Equal in number and paired

(B) Uncorrelated

(C) Independent

(D) None of the above

(Only for Rough Work)

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the most correct/appropriate answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.

6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.

7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.

8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.

9. There will be no negative marking.

10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.

11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.

12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is ny discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर— A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से एक सबसे सही अथवा सबसे उपयुक्त उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।

6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।

7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।

8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।

9. निगेटिव मार्किंग नहीं है।

10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।

11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।

12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।