FACULTY OF SCIENCE

Time: 3 Hours

Max. Marks: 80

PART – A

Note: Answer any eight questions.

(8 x 4 = 32 Marks)

1. State the properties of multinomial distribution.
2. Explain the concept of least squares estimation.
3. Explain (i) Mean square error (ii) R^2
4. Define cluster analysis and state its applications.
5. What is factor analysis? Give an example.
6. Write the properties of principal component analysis.
7. Explain the uses of vital statistics.
8. Explain standardized death rates.
9. Explain crude rate of natural increase with Pearle's vital index.
10. Explain functions of CSO.
11. Limitations of Index Numbers.
12. Explain deflation of Index Numbers

PART – B

Note: Answer all the questions.

(4 x 12 = 48 Marks)

13. (a) (i) Explain multivariate distribution with real life example.
    (ii) State properties of multivariate distribution.

    (OR)

    (b) Estimate the parameters in logistic regression and also state properties of logistic regression.

14. (a) Explain Bayesian linear discriminant rule for image processing.

    (OR)

    (b) Explain multidimensional scaling technique to pattern recognition and also give its applications.

15. (a) Explain different types of fertility rates, give its merits and demerits.

    (OR)

    (b) (i) State assumptions of life table.
    (ii) Explain description of life tables in detail.

16. (a) Define cost of living index numbers. Explain methods of its construction. Also give its uses.

    (OR)

    (b) Show that Fisher's index number is an ideal number with suitable example.

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FACULTY OF SCIENCE

Time: 3 Hours

PART – A

Note: Answer any eight questions.

1. State Cochran's theorem. Write its applications.
2. Explain briefly the concept of Gauss-Markoff linear model.
3. Explain applications of design of experiments.
4. Explain statistical analysis of complete randomized design.
5. Explain the formula for missing plot in RBD. Explain applications of design of experiments.
6. Find the expectations of error sum of squares in completely randomized design.
7. Define vital statistics and state its applications.
8. Explain specific death rates.
9. Explain Abridged life tables.
10. Explain the functions of CSO.
11. Explain various weighted Index numbers.
12. Write the problems involved in construction of various index numbers.

PART – B

Note: Answer all the questions.

(4 x 12 = 48 Marks)

13. (a) Explain the analysis of one way classifications and write its assumptions.

    (OR)

    (b) Explain the analysis of two-way classification.

14. (a) Find the expectations of sum of squares treatments and error in CRD.

    (OR)

    (b) Estimate the missing value in LSD and state differences in its analysis when compared to RBD.

15. (a) Explain various columns of life tables and write its applications.

    (OR)

    (b) Explain various population growth measures.

16. (a) Explain in detail about Agricultural statistics.

    (OR)

    (b) Define cost of living index number. Describe various methods of its computations. Also give its applications

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FACULTY OF SCIENCE

B.Sc. / B.A. V Semester (CBCS) Examination, March 2022

Subject: Statistics

Paper – V - A: Applied Statistics - I

Time: 3 Hours

Max. Marks: 80

PART – A

Note: Answer any eight questions.

(8 x 4 = 32 Marks)

1. Explain sampling errors.
2. Define parameter, sampling unit, sample frame and standard error.
3. Show that in SRSWOR, the probability of selecting a specified unit of the population at any given draw is equal to the probability selecting it at the first draw.
4. Find $Var(\bar{y}_n)$ Under proportional allocation.
5. Write the Advantages and disadvantages of Stratified random sampling.
6. Explain the methods of drawing simple random sample
7. Explain the additive and multiplicative models.
8. Explain the Fitting of Gompertz curve.
9. Write the merits and demerits of Link relative method.
10. Distinguish between Assignable causes and chance causes.
11. Explain the importance of SQC in industry.
12. Explain the construction of U-chart.

PART – B

Note: Answer any four questions.

(4 x 12 = 48 Marks)

13. Explain the principal steps of a sample survey.

14. Distinguish between SRSWOR and SRSWR. Show that Sample mean square is an unbiased estimate of population mean square

15. Show that $Var(\bar{y}_{st})_{opt} \leq Var(\bar{y}_{st})_{prop} \leq Var(\bar{y}_n)_R$.

16. Define systematic sampling. Obtain the sampling variance of the mean under systematic sampling and compare with variance under SRSWOR.

17. What is Time series? What are the components of Time series? Explain with examples.

18. Explain the fitting of Modified Exponential Curve by the method of three selected points.

19. Explain the construction of $\bar{X}$ and R charts in detail and what purpose they serve.

20. Explain the construction of p chart for fixed sample size and varying sample sizes.

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