K23U 1148

Reg. No. : .....

Name : .....

IV Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN STATISTICS
4C04STA (G & P) : Inferential Statistics

Time : 3 Hours Max. Marks : 40

***Instruction : Use** of Calculators and Statistical tables are **permitted**.*

PART – A
(Short Answer)

Answer **all 6** questions. **(6×1=6)**

1. Define statistic.
2. Define an efficient estimate.
3. What do you mean by statistical inference ?
4. State the 95% confidence interval for the mean of a normal distribution, when σ is known.
5. Define the term testing of hypothesis.
6. What do you mean by non-parametric test ?

PART – B
(Short Essay)

Answer **any 6** questions. **(6×2=12)**

7. What is the difference between estimator and estimate ?
8. Explain unbiased and sufficiency estimator.

P.T.O.

9. Define the two types of errors.

10. Define most powerful test.

11. Distinguish between large sample and small sample tests.

12. What is a statistical hypothesis ? Give example.

13. Explain Mann-Whiteney U test.

14. Explain the term ANOVA. Write any two uses of ANOVA.

PART – C
(Essay)

Answer **any 4** questions. **(4×3=12)**

15. What do you mean by two-way classification model in ANOVA ?

16. Define Consistent estimator. Give an example.

17. Distinguish between point estimation and interval estimation.

18. Obtain 98% confidence interval for the difference of two population proportion.

19. Explain :
    1) Simple and composite hypothesis
    2) Size and power of a test.

20. Consider the following 2 × 2 contingency table :

	A	
B	**Male**	**Female**
Educated	7	1
Not Educated	6	8

Apply Chi square test and test at 5% level of significance whether the two attributes A and B are independent ?

PART – D
(Long Essay)

Answer **any 2** questions. **(2×5=10)**

21. Two independent random samples each of size 10 from 2 independent normal distributions, $N(\mu_1, \sigma_1)$ and $N(\mu_2, \sigma_2)$ yield $\bar{x}_1 = 4.8$, $S_1^2 = 8.6$ and $\bar{x}_2 = 5.6$, $S_2^2 = 7.9$. Find 95% confidence interval for $\mu_1 - \mu_2$.

22. Before an increase in excise duty on tea 400 peoples out of a sample of 500 persons were found to be tea drinkers. After an increase in excise duty 400 people were tea drinkers in a sample of 600 people. Examine whether there is any significant decrease in consumption of tea because of the increase in excise duty. ($\alpha = 0.05$).

23. Explain the Chi-square test of goodness of fit.

24. Set a table of analysis of variance for the following data :

	Variety			
Plot	**A**	**B**	**C**	**D**
1	200	230	250	300
2	190	270	300	270
3	240	150	145	180

Test whether varieties are different.