



23104423

QP CODE: 23104423

Reg No :

Name :

**BCA DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE
EXAMINATIONS, JANUARY 2023**

Third Semester

Bachelor of Computer Applications

COMPLEMENTARY COURSE - ST3CMT32 - ADVANCED STATISTICAL METHODS

2017 Admission Onwards

5BE896F3

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Define Bernoulli distribution.
2. Write down the mgf of Poisson distribution.
3. What is the value of Z when the area under the normal curve is 0.5?
4. Define sampling distribution.
5. What is the relation between Normal and a t variable?
6. What is the mean of sampling distribution of mean when samples are taken from Normal population?
7. What is an estimator?
8. Define confidence coefficient.
9. What is the confidence interval for population proportion in sampling from binomial population?
10. What is the relation between significance level and Type 1 error?
11. Write down the chi-square statistic for a 2x2 contingency table.
12. Write down the test statistic for testing equality of mean when population SD's are known.

(10×2=20)

Part B





*Answer any **six** questions.
Each question carries **5** marks.*

13. A coin is tossed six times. What is the probability of obtaining five or more heads.
14. Obtain the mean, variance and mgf of continuous uniform distribution.
15. The height of the school children is normally distributed with mean of 54 inches and SD of 12 inches. What proportion of students have height between 46 and 56 inches?
16. A population is known to follow the normal distribution with mean 2 and SD 3. Find the probability that the mean of a sample of size 16 taken from this population will be greater than 2.5.
17. What are the properties of t distribution?
18. Show that sample variance is a consistent estimator for the population variance when samples are taken from normal population.
19. A random sample of 25 people from a population showed incomes with mean 4800 and SD=500. Estimate the population mean with 95% confidence interval.
20. Explain chi-square test as a non parametric test.
21. The following are the number of accidents taking place in a road from Sunday to Saturday. 11, 13, 14, 13, 15, 14, 18. Using this information test whether accidents occur uniformly over week days.

(6×5=30)

Part C

*Answer any **two** questions.
Each question carries **15** marks.*

22. Explain area property of Normal distribution. What is standard Normal Distribution? What is standard Normal table?
23. Define F statistic. What is its pdf. Explain two important uses of it in statistical analysis.
24. Differentiate between method of moments and method of maximum likelihood.
25. A sample of 200 boys who passed SSLC examination are found to have mean marks 50 with SD 5 for English. The mean marks of 100 girls was found to be 48 with SD 4. Does this indicate any significant difference between the abilities of Boys and girls assuming the SD's the same at 5% significance level.

(2×15=30)

