21102156

**QP CODE: 21102156**

**Reg No :** .....

**Name :** .....

## BCA DEGREE (CBCS)EXAMINATION, AUGUST 2021

### Third Semester

Bachelor of Computer Applications

## COMPLEMENTARY COURSE - ST3CMT32 - ADVANCED STATISTICAL METHODS

2017 Admission Onwards

03DC73B9

Time: 3 Hours Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

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

1. What are the parameters of Normal distribution?
2. What is the mean and variance of a standard normal variable?
3. What are the conditions under which Binomial distribution tends to Normal distribution?
4. Define population and sample.
5. What is the mean of chi-square distribution?
6. How tables are prepared?
7. What are the different types of estimation?
8. What are the properties of a good estimator?
9. Write down a 90% confidence limits for population mean for a given sample mean and sample SD.
10. What are the conditions under which small sample tests are applied?
11. State the null hypothesis under goodness of fit.
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. Four coins are tossed simultaneously. What is the probability of getting exactly 2 heads?

14. If a random variable X follows a Poisson distribution such that P(X=1)=P(X=2).Find P(X=0).

15. Obtain the mean, varianceand mgf of continuous uniform distribution.

16. What are the uses of normal distribution as a sampling distribution?

17. What are the uses of t distribution?

18. A random sample of size 100 has mean 45 and sd 15.Obtain a 95% confidence interval for the population mean.

19. Obtain a confidence interval for variance of a normal population.

20. The mean life of 100 fluorescent light tubes produced by a company is computed to be 1570 hours with SD of 120 hours. The company claims that the average life of the tubes produced by the company is 1600 hours. Using the level of significance of 0.05, Is the claim acceptable?

21. Explain chi-square test as a non parametric test.

(6×5=30)

**Part C**

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Obtain the mean,variance and mgf of Bernoulli distribution.

23. Briefly explain various sampling distributions.What are their uses.

24. Derive the confidence interval for true value of proportion of binomial population.

25. Explain the steps involved in hypothesis testing.

(2×15=30)