



QP CODE: 22100760



22100760

Reg No : .....

Name : .....

**BCA DEGREE (CBCS )REGULAR / REAPPEARANCE EXAMINATIONS, APRIL 2022**

**Third Semester**

Bachelor of Computer Applications

**COMPLEMENTARY COURSE - ST3CMT32 - ADVANCED STATISTICAL METHODS**

2017 Admission Onwards

D2684240

Time: 3 Hours

Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

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

1. Obtain the expression for mean of a Poisson distribution.
2. Obtain the mean of uniform distribution in continuous setup.
3. What are the conditions under which Binomial distribution tends to Normal distribution?
4. What are the commonly used sampling distributions?
5. Point out some uses of F distribution.
6. What is the relation between Normal and a t variable?
7. Define point estimation.
8. Define efficiency.
9. What is the confidence interval for population variance in sampling from normal population?
10. Define composite hypothesis.
11. What are the uses of chi-square test?
12. Write down the test statistic used when goodness of fit is applied.

(10×2=20)

**Part B**

*Answer any **six** questions.*

*Each question carries **5** marks.*





13. If  $X$  is a Bernoulli variate taking values 1 or 0 with probabilities 0.6 and 0.4 respectively. Find the mean and variance.
14. The weekly wages of 1000 work men are normally distributed with a mean of 70 and SD of 5. Estimate the number of workers whose wages will be between 69 and 72.
15. In a Normal distribution 17% of the items are below 30 and 17% of the items are above 60. Find the mean & Standard deviation.
16. What are the properties of chi-square distribution?
17. Write down the pdf of t distribution.
18. Find the m.l estimate of  $a$  and  $b$  in  $U(a,b)$
19. Derive the confidence interval for proportion of a Binomial population.
20. Explain the procedure for testing independence of attributes.
21. In two colleges affiliated to a university 46 out of 200 and 48 out of 250 candidates failed in an examination. If the percentage of failure in the university is 18 % ,examine whether the colleges differ significantly.

(6×5=30)

### Part C

Answer any **two** questions.

Each question carries **15** marks.

22. Write notes on Binomial distribution. What are its properties? What is its importance?
23. Explain sampling distribution with example.
24. Obtain confidence interval for mean of a normal population when population SD is unknown.
25. A sample of 400 men from South India has a mean height of 65.85 inches and a SD of 2.50 inches while a sample of 100 men from North India has a mean height of 66.20 inches with a SD of 2.52 inches. Do the data indicate that North Indian's are on the average taller than South Indian's.

(2×15=30)

