



23104819

**QP CODE: 23104819**

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

**Name** : .....

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

**First Semester**

Bachelor of Computer Applications

**Complementary Course - ST1CMT31 - BASIC STATISTICS AND INTRODUCTORY  
PROBABILITY THEORY**

2017 Admission Onwards

FB9C4C1E

Time: 3 Hours

Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

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

1. What is weighted arithmetic mean?
2. What are percentiles?
3. Find Mean if SD=10 and coefficient of variation = 25
4. What is a power curve?
5. What do you mean if correlation coefficient is 0.8?
6. Explain the utility of regression analysis.
7. Distinguish between simple and compound event.
8. What are the properties of probability?
9. State multiplication rule for two independent events.
10. What are the properties of probability density functions?
11. If  $U=ax+b$  find the expectation of  $U$  where  $a$  and  $b$  are constants.
12. Find the mean of a random variable having pdf  $f(x) = 3x^2$  ;  $0 \leq x \leq 1$ .

(10×2=20)





### Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Draw a frequency curve for the following:

Class	30-40	40-50	50-60	60-70	70-80
f	3	5	12	8	4

14. Explain with an example that how will you construct a stem and leaf chart?

15. Find mean deviation about mean:

11,3,0,7,2,6,4,7

16. From the data given below fit a straight line of the form  $Y=a+bX$ :

X	2	3	7	8	10
Y	10	9	11	8	12

17. Obtain the regression equation of Y on X and correlation coefficient for the following:

X	4	6	8	10	12
f	7	9	8	12	15

18. There are 17 balls numbered from 1 to 17 in a bag. If a person selects one at random what is the probability that the number printed on the ball be an even number greater than 9?

19. State and prove addition theorem for two events.

20. What are probability functions? Can the following functions be probability mass functions?

$f(x) = -1/2, 1/2, 1/2$  according as  $x=2, 3$ , and 4 and zero else where.

21. Find the mgf of  $f(x) = ae^{-ax}, x > 0$

= 0 otherwise

(6×5=30)

### Part C

Answer any **two** questions.

Each question carries **15** marks.





22. Calculate variance of the following:

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
frequency	12	10	13	15	20	18	12

23. In a partially destroyed record of analysis of correlation data ,the following results are available.

Variance of  $X=9$ ,Regression equations: $8x-10y+66=0$ , $40x-18y=214$

Find (1) the mean values of  $X$  and  $y$ (2) the coefficient of correlation (3) the standard deviation of  $Y$

24. There are two identical boxes containing respectively 4 white and 3 red balls,3 white and 7 red balls. A box is chosen at random and a ball is drawn from it. Find the probability that the ball is white.If the ball is white ,what is the probability that it comes from the first box.

25. Find the mean ,variance and mgf of  $f(x)=ke^{-kx}$  ; $k>0,x>0$

(2×15=30)

