



QP CODE: 23104396



Reg No : .....

Name : .....

**B.Sc DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE  
EXAMINATIONS, JANUARY 2023**

**Third Semester**

B.Sc Computer Science Model III

**COMPLEMENTARY COURSE - ST3CMT41 - STATISTICS - STATISTICAL METHODS  
AND PROBABILITY THEORY**

2017 Admission Onwards

41508BEC

Time: 3 Hours

Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

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

1. What do you mean by sampling unit?
2. Explain any two methods of classification.
3. What are the uses of seasonal variations?
4. Distinguish between class limit and class interval.
5. Explain interval scale with example.
6. What are measurers of dispersion?
7. Find combined mean of the two groups 2, 7, 9, 12 and 4, 7, 9, 10, 11, 3, 15.
8. Define the quartiles.
9. What are the uses of coefficient of variation in data analysis?
10. Explain independent and dependent events.
11. If  $U=ax+b$  find the expectation of  $U$  where  $a$  and  $b$  are constants.
12. Define binomial distribution.

(10×2=20)

**Part B**

*Answer any **six** questions.*





Each question carries 5 marks.

13. Distinguish between primary and secondary data and indicate their sources.
14. What are the advantages of sampling over census?
15. Distinguish between systematic and stratified random sampling.
16. Show that the sum of absolute values of deviations of observations is the minimum when it is taken from median.
17. Define the weighted arithmetic mean of a set of numbers. Show that it is unaffected if all the weights are multiplied by some common factor
18. Define (1) Random experiment (2) Sample point (3) Sample space (4) Event
19. Explain the meaning of pair wise and mutual independence of three events.
20. (a) State addition theory of probability for three events. (b) Suppose A, B, C are events such that  $P(A) = P(B) = P(C) = 1/4$  and  $P(A \cap B) = P(C \cap B) = 0$  and  $P(A \cap C) = 1/8$ . Evaluate  $P(A \cap B \cap C)$ .
21. If a random variable X follows a Poisson distribution such that  $P(X=1) = P(X=2)$ . Find  $P(X=0)$

(6×5=30)

### Part C

Answer any **two** questions.

Each question carries **15** marks.

22. (a) Distinguish between census and sampling. (b) Briefly explain various random sampling techniques.
23. Calculate the mean, median and mode from the following data
 

Class:	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	14	20	42	54	45	18	7
24. (a) Explain absolute measures of dispersion. (b) Find the mean deviation about mean and standard deviation
 

Score :	5	10	15	20	25	30	35
frequency :	14	28	65	90	5	4	1
25. a) State and prove multiplication theorem for two and three events. b) If A and B are independent, show that A and B' are independent, A' and B are independent, and A' and B' are independent.

(2×15=30)

