QP CODE: 24045682

24045682

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, DECEMBER 2024

First Semester

M.Sc COMPUTER SCIENCE (DATA ANALYTICS)

CORE - CA030101 - STATISTICS FOR DATA ANALYTICS

2020 ADMISSION ONWARDS

CE8D98F6

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is an event? When will two events be mutually exclusive?
2. Define Conditional Probability.
3. Define Median? What is the formula for calculating median of individual observations and continuous data?
4. Calculate the harmonic mean of the following data:
   5, 11, 12,16, 7, 9, 15, 13, 10 and 8
5. Give any two properties of probability density function.
6. Define Bernoulli distribution.
7. What is correlation analysis?
8. Define covariance.
9. Distinguish between continuous time series and discrete time series.
10. Define seasonal index?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. State and prove theorems on probability.
12. A bag contains 3 red balls, 5white balls and 4 black balls. Two balls are drawn one after the other with replacement. Find the probability that the first is red and the second is black.
13. Calculate the range and quartile deviation of the following data:

    20, 25, 29, 30, 35, 39, 41, 48, 51, 60 and 70

14. Explain about moments.

15. Ten coins are thrown simultaneously. Find the probability of getting at least seven heads.

16. Define normal distribution. Show that the mean of the normal distribution is μ.

17. **The lengths and weights of a sample of six articles manufactured by a factor are given here. Find the Pearson's correlation coefficient.**

Length(X)	**3**	**5**	**6**	**7**	**10**	**11**
Weights(Y)	**8**	**12**	**11**	**14**	**16**	**17**

18. Write short notes on the preliminary adjustments to be made before a time the analysis of time series with a trend?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. **Calculate Karl Pearson's coefficient of skewness from the following data.**

Class	**Frequency**
0-10	**5**
10-20	**6**
20-30	**11**
30-40	**21**
40-50	**35**
50-60	**30**
60-70	**22**
70-80	**11**

20. Define Sampling. Explain the different methods of sampling.

21. **In a study of the relationship between X=mean daily temperature for the month and Y=monthly charges on electric bill, the following data was gathered.**

Calculate the regression equation.

X	**20**	**30**	**50**	**60**	**80**	**90**
Y	**125**	**110**	**95**	**90**	**110**	**130**

22. Explain in detail about the different types of variations in time series.

(2×5=10 weightage)