

**BACHELOR OF COMPUTER
APPLICATIONS (BCA)
(REVISED)**

Term-End Examination

June, 2026

BCS-040 : STATISTICAL TECHNIQUES

Time : 2 Hours

Maximum Marks : 50

Note : (i) *Attempt both Sections, i.e., Section A
and Section B.*

(ii) *Attempt any **four** questions from
Section A.*

(iii) *Attempt any **three** questions from
Section B.*

(iv) *Use of non-scientific calculator is
allowed.*

Section—A

1. The daily wages (in rupees) of 50 workers of a factory are given as follows :

Daily wages	No. of workers
250–350	10
350–450	12
450–550	20
550–650	5
650–750	3

Calculate mean and standard deviation of the wages of the workers. 5

2. In a certain computer lab, 5% computers have defective keyboard, 12% computers have defective mouse and 4% computers have defective keyboard as well as defective

mouse. A computer is selected randomly from the lab. What is the probability that the selected computer has defective keyboard or defective mouse ? 5

3. Consider the following data of sales of milk by a dairy in a week : 5

Day	Sales (in litre)
Monday	500
Tuesday	400
Wednesday	450
Thursday	500
Friday	600
Saturday	700
Sunday	800

Find the moving average of length 3. Also plot these moving averages.

4. In order to find the correlation coefficient between two variables X and Y from 20 pairs of observations, the following calculations are made :

$$\Sigma X = 15, \Sigma Y = 6, \Sigma XY = 50, \Sigma X^2 = 50 \text{ and } \Sigma Y^2 = 90$$

Calculate the correlation coefficient. 5

5. An advertising company is interested to estimate the average number of hours each week that households watch television within a region. The region has two towns, A and B. There are 155 households in town A, 145 in town B. A stratified random sample of size 50 is to be taken combinedly. Determine sample size to be taken

from town A and town B separately
using :

- (i) Proportion allocation
- (ii) Optimum allocation

It is known from a previous survey that

$$S_A = 3 \text{ and } S_B = 5. \quad 5$$

6. Write short notes on the following : 5

- (i) *t*-test
- (ii) Binomial distribution

Section—B

7. A manager of a car company wants to find
the relationship between age of cars and
annual maintenance cost. The following

data from the cars of same model are obtained :

Age of Car (in years)	Maintenance Cost (in thousand rupees)
1	10
2	12
3	15
4	15
5	18
6	20

- (i) Construct a scatter diagram for the above data.
- (ii) Fit a best linear regression line, by taking annual maintenance cost as dependent variable and the age of the car as the independent variable. 10

8. The three drying techniques for a glue were studied and the following times (in minutes) were observed :

Technique A	Technique B	Technique C
13	10	5
10	11	4
8	14	4
11	14	5
8	15	6

Using ANOVA, test the hypothesis that the average times for three techniques are same at 5% level of significance.

(Given $F_{(2, 12), 5\%} = 3.89$)

10

9. The following data give the information about the condition of home and condition of child of 300 families :

Condition of Child	Condition of Home	
	Clean	Dirty
Clean	70	50
Fairly clean	80	20
Dirty	30	50

Using the Chi-square test, test whether the condition of home and condition of the child are independent or not at 5% level of significance. (Given $\chi^2_{(2),0.05} = 5.99$) 10

10. Write short notes on any **two** of the following : 5+5

- (i) Time series
- (ii) Systematic sampling
- (iii) Criteria for a good estimator

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