

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-IV

ASSIGNMENTS

(July – 2026 & January - 2027)

**(BCS-040, MCS-024, BCS-041, BCS-042,
MCSL-016, BCSL-043, BCSL-044, BCSL-045)**



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the BCA Programme Guide.

Course Code	:	BCSL-044
Course Title	:	Statistical Techniques Lab
Assignment Number	:	BCA(IV)/L-044/Assignment/2026-27
Maximum Marks	:	50
Weightage	:	25%
Last Dates for Submission	:	31st October, 2026 (For July 2026 Session)
	:	30th April, 2027 (For January 2027 Session)

This assignment has eight questions of total of 40 marks, each question carries equal marks. Rest 10 marks are for viva voce. Please go through the guidelines regarding assignments given in the programme guide for the format of presentation.

Q1: The marks obtained by 20 students in an entrance examination out of 100 are given below:

60, 50, 75, 25, 80, 35, 85, 60, 65, 95, 31, 91, 71, 68, 25, 30, 62, 73, 77, 64

Using a spreadsheet package, perform the following tasks:

- Enter the data in a spreadsheet.
- Create a frequency distribution using class intervals: 0–10, 11–20, 21–30, ..., 91–100.
- Draw a histogram for the data.
- Calculate the mean and standard deviation using spreadsheet formulas.
- Find the minimum and maximum marks.

Q2: The marks of 20 students in a project course out of 200 are given below:

110, 95, 150, 80, 115, 30, 180, 125, 90, 117, 25, 75, 85, 135, 160, 77, 89, 129, 149, 101

Using a spreadsheet package, perform the following tasks:

- Create a frequency distribution using the class intervals:
0–25, 26–50, 51–75, 76–100, 101–125, 126–150, 151–175, 176–200.
- Use an array formula or suitable spreadsheet function to count frequencies.
- Draw a histogram.
- Calculate the mean and variance.
- Find the lowest and highest project marks.

Q3: The pulse rates of 6 people were recorded before and after taking a new drug:

Before:	69,	72,	67,	75,	80,	79
After:	70,	68,	68,	71,	72,	75

Using a spreadsheet package, perform a paired t-test at 10% level of significance to test whether the drug causes a significant decrease in pulse rate.

Your answer should include:

- a) Null hypothesis and alternative hypothesis.
- b) Difference between before and after values.
- c) Mean and standard deviation of differences.
- d) Calculated t-value.
- e) Final conclusion.

Q4: The following table gives the mortality rate of insects after the use of an insecticide:

Category	Living	Dead	Total
Not given insecticide	320	125	445
Given insecticide	98	230	328
Total	418	355	773

Using a spreadsheet package, test whether the insecticide has a significant effect on killing insects.

Your answer should include:

- a) Observed frequency table.
- b) Expected frequency table.
- c) Chi-square calculated value.
- d) Degree of freedom.
- e) Final conclusion.

Q5: A company has the following data about monthly production and production cost:

Production in 100 kg	1	2	8	5	9	7
Production Cost in Lakhs	2	3	7	5	9	6

Using a spreadsheet package, perform the following tasks:

- a) Enter the data in two columns.
- b) Construct a scatter diagram.
- c) Find the best linear regression line, taking **production** as the independent variable and **production cost** as the dependent variable.
- d) Display the regression equation on the chart.
- e) Use the equation to estimate production cost when production is **6 hundred kg**.

Q6: The sales of milk by a company during a week are given below:

Day	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Sales in thousand litres	500	420	360	410	450	510	520

Using a spreadsheet package, perform the following tasks:

- a) Calculate the moving averages of length 3.
- b) Calculate the moving averages of length 5.
- c) Plot the original sales data and both moving-average series on the same chart.
- d) Comment on the trend shown by the moving averages.

Q7: The percentage marks obtained by 20 students in the 12th examination are given below:

72.5, 67.2, 30.7, 80.5, 25.9, 60.7, 90.8, 86.5, 71.2, 88.9, 97.5, 80.5, 82.7, 65.0, 50.5, 48.7, 46.9, 55.7, 66.7, 32.9

Using a spreadsheet package, perform the following tasks:

- a) Create a frequency distribution using class intervals:
0–10.5, 10.6–20.5, 20.6–30.5, ..., 90.6–100.
- b) Draw a histogram.
- c) Calculate the mean and standard deviation.
- d) Find the minimum and maximum percentage.
- e) Comment on the overall performance of the group.

Q8: The marks obtained by 20 students in a 12th examination out of 400 are given below:

325, 310, 250, 315, 200, 275, 290, 100, 305, 195, 275, 350, 370, 199, 297, 301, 285, 235, 375, 315

Using a spreadsheet package, perform the following tasks:

- a) Calculate the mean, median, variance, and standard deviation.
- b) Find the minimum and maximum marks.
- c) Replace the lowest value with **50** and recalculate the mean and standard deviation.
- d) Compare the original and changed results.
- e) Explain how an extreme value affects the mean and standard deviation.