

M.Sc(Environmental Sci.) Semester - 1 (CBCS) Examination**OCT/NOV-2025****Statistics and Computational Application (Core)****Time: 2:30 Hours****Marks:70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Que.1 Answer the following (Any seven out of Ten, each of 02 marks) (14)
- 1) Calculate Mean, Mode, Median and Range from 13,15,17,17,19,11 data
 - 2) Write any two merits and demerits of the median
 - 3) What is difference between paired and unpaired student's t test?
 - 4) Write note on pie chart with suitable example
 - 5) What is difference between null hypothesis and alternative hypothesis?
 - 6) Define environment systems.
 - 7) What are the basic strategies for development environmental model?
 - 8) What are the applications of Microsoft office in environmental health?
 - 9) What are the popular web browser used for research?
 - 10) Define multivariate analysis?
- Que.2 Answer the following (Any two out of three, each of 07 marks) (14)
- 1) Describe any seven types of Graph with suitable example.
 - 2) Calculate the Coefficient of Variation (CV) for the following two sample data sets and give your interpretation from results.
 Group A 13, 21, 27, 31, 35, 24, 28, 32, 17, 20.
 Group B. 77, 87, 97, 107, 95, 87, 90, 104, 107, 98.
 - 3) Find the variance and standard deviation for the following test score
 85, 100, 92, 96, 87, 94, 75, 56, 60, 69
- Que.3 Answer the following (Any two out of three, each of 07 marks) (14)
- 1) Write a detail note on the analysis of variance.
 - 2) Write a detail note on Regression
 - 3) What is the Chi-square test? Discuss in detail.
- OR
- Que.3 Answer the following (1 & 2 – Both are compulsory, each of 07 marks)
- 1) Write a note on Student's T-test? Discuss paired student's T-test with below data (use 1.833 t critical/table value)
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|--------------------|----|----|----|----|----|----|----|----|----|----|
| Student: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Pre module score: | 41 | 51 | 29 | 32 | 29 | 34 | 28 | 31 | 33 | 29 |
| Post module score: | 25 | 35 | 30 | 34 | 26 | 39 | 31 | 33 | 29 | 31 |
- 2) Based on field experiments, a new variety green gram is expected to give a yield of 12.0 quintals per hectare. The variety was tested on 10 randomly selected farmers' fields. The yields (quintals/hectare) were recorded as 24.3, 22.6, 23.7, 20.9, 23.7, 22.0, 21.4, 22.0, 22.6, and 23.1. Do the results confirm the expectation? (use 2.262 t critical/table value)
- Que.4 Answer the following (Any two out of three, each of 07 marks) (14)
- 1) Describe the principal component analysis
 - 2) Write Factor analysis in details
 - 3) Describe the popular software and packages used for the Microsoft office.
- Que.5 Answer the following (Any two out of three, each of 07 marks) (14)
- 1) Discuss in detail lotka- volterra model.
 - 2) Write about the environmental system analysis.
 - 3) What is Modeling? explain approaches for development of models.
