

M.Sc. (Zoology) Semester - 1 (CBCS) Examination
OCT/NOV-2024 (AS PER SYLLABUS YEAR JUNE-2023)
Biostatistics, Bioinformatics & Biosafety (Ict (New-23))

Time: 2:30 Hours

Marks: 70

Instructions:

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

Q.1 Answer the following (any seven out of eight – 02 marks each) (14)

1. Explain the role of PubMed.
2. Explain the function of PDB and GeneBank.
3. Mention the biosafety level for the *Clostridium botulinum*.
4. Define the containment.
5. Write down importance of Mode
6. Explain formula of Median.
7. Find the mean, median, mode and range for each set of numbers.
55, 58, 56, 52, 55, 56, 58, 59, 55, 55
8. Write down merits of Mean

Q.2 Answer the following (any two) (14)

1. Describe types of graphs with suitable examples.
2. Find the variance and standard deviation for the following snow fall in Kedarnath region and discuss your results.
15, 18, 36, 41, 12, 43, 09, 11, 23, 27, 31.
3. Calculate the Coefficient of Variation (CV) for the following two spices sample data sets and give your interpretation from results.
Class A - 93, 91, 97, 93, 95, 84, 98, 82, 97, 80, 93.
Class B - 77, 96, 97, 77, 95, 98, 93, 74, 72, 98, 99.

Q.3 Answer the following (any two) (14)

1. Calculate un-paired student's T-test with below two different Soil sample from Uttarakhand region sites pH data (use 1.746 t critical/table value), set hypothesis and evaluate after result.
Water sample:
Sample area 1 : 4.1, 5.1, 3.9, 5.2, 5.9, 6.4, 8.2, 7.7 and 9.1
Sample area 2 : 5.7, 6.0, 8.2, 5.3, 7.7, 8.9, 7.1, 7.2 and 6.9
2. Write a note on Student's T-test? Discuss paired student's T-test with below data (use 1.833 t critical/table value)
Internal mark: 58, 61, 46, 52, 69, 74, 57, 91, 33, 18
Test marks after remedial classes: 62, 65, 71, 54, 76, 74, 80, 93, 49, 20
3. Explain one way ANOVA with suitable example.

Q.4 Answer the following (any two) (14)

1. Explain the Primary database in detail.
2. Write a note on multiple alignment.
3. Discuss the application of bioinformatics in medical and agricultural sciences.

Q.5 Answer the following (any two) (14)

1. Explain the secondary containment for Biohazards.
2. Write short note on risk assessment and management.
3. Write short note on biosafety levels and mention its importance.
