

B.Sc. Semester - 4 (CBCS) Examination
March/April-2023 [NEW COURSE]
BioTechnology-BT401(Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

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

Q.1(A) Answer the following questions. (Any One) (07)

1. Discuss interaction within, between and among populations with at least 7 examples.
2. Discuss factors affecting biodiversity and conservation of biodiversity with at least 4 examples.

Q.1(B) Answer the following question. (Any One) (04)

1. Discuss Population characteristics and its model of growth.
2. Write a note on Aquatic biomes with examples.

Q.1(C) Answer the following question. (Any Three) (03)

1. Define Biome.
2. Define Biodiversity.
3. Comment on mortality rate.
4. Comment on antagonism among organisms.
5. Define Ecology.

Q.2(A) Answer the following questions. (Any One) (07)

1. Enlist Air pollutants and write down their effects.
2. Reactions involved in the biodegradation of nitrobenzene and DDT.

Q.2(B) Answer the following question. (Any One) (04)

1. Diversity of metabolic processes among bacteria.
2. Discuss biodegradation of Hydrocarbon & Xenobiotics.

Q.2(C) Answer the following question. (Any Three) (03)

1. Chlorinated hydrocarbon pesticide such as DDT are usually magnified in food chain. True/False.
2. What is pH of acid rain?
3. Name common air pollutants.
4. Define Biomagnification.
5. Define Xenobiotics.

Q.3(A) Answer the following questions. (Any One) (07)

1. Physical, Chemical & Biological properties of water and waste-water.
2. Primary, Secondary and Tertiary treatment processes.

Q.3(B) Answer the following question. (Any One) (04)

1. Treatment of solid wastes (Anaerobic digestion and composting).
2. Enlist and explain types of Biofertilizers with 5 examples.

Q.3(C) Answer the following question. (Any Three) (03)

1. What is full form of MPN?
2. Trickling filter is ____ treatment.
3. COD stands for ____.
4. Full form of BOD.
5. The extraction of metal from ore using microbes is called ____.

Q.4(A) Answer the following questions. (Any One) (07)

1. Weight of children of the age 10 is given below in kilograms.
24.5, 26, 28.5, 29, 22.4, 28.2
Calculate: Minimum, Maximum, Range, Mean, Std. Deviation, Std. Error of Mean, Coefficient of variation.
2. Weight of fishes are given below in grams.
77.17, 81.9, 89.77, 91.35, 67.2, 84.6
Calculate: Minimum, Maximum, Range, Mean, Std. Deviation, Std. Error of Mean, Coefficient of variation.

Q.4(B) Answer the following question. (Any One) (04)

1. Calculate the Coefficient of variance of the given data and conclude which variable is consistent.
A: 4, 5, 5, 0, 6, 7
B: 1, 2, 2, 4, 3, 3
2. Give applications of biostatistics.

Q.4(C) Answer the following question. (Any Three) (03)

1. Define: Variance.
2. What symbol is used to represent mean?
3. ____ is known as the midpoint of the data.
4. Comment on Standard Deviation.
5. Comment on the Coefficient of Variance.

Q.5(A) Answer the following questions. (Any One) (07)

1. Discuss ANOVA.
2. What is chi square test? State its applications in biology.

Q.5(B) Answer the following question. (Any One) (04)

1. Discuss Probability and Conditional probability.
2. Give applications of Student's t-test.

Q.5(C) Answer the following question. (Any Three) (03)

1. Define Null hypothesis.
2. Define Alternate hypothesis.
3. What do you understand by Kurtosis?
4. What do you understand by Skewness?
5. Write full form of ANOVA.
