

B.Sc. Semester - 4 (CBCS) Examination
April/May -2022 [NEW COURSE]
BioTechnology-BT401 (Core)

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

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Question-1**Q. 1 Answer all the questions:****a. Answer one out of two-****(07 Marks)**

- i. Explain the nitrogen cycle along with its importance.
- ii. Discuss the model of population growth.

b. Answer one out of two-**(04 Marks)**

- i. Write four causes of loss of Biodiversity.
- ii. Give short notes on Grassland ecosystem.

c. Answer any three out of five-**(03 Marks)**

- i. Define trophic level.
- ii. Interaction in which one organism is benefitted and other is neither benefitted nor harmed is called.....
- iii. J-shaped population curve.....growth.
- iv. Habitat loss is major cause of loss of Biodiversity-True/false.
- v. Give the one name of nitrogen fixing bacteria.

Question-2**Q. 2. Answer all the questions:****a. Answer one out of two-****(07 Marks)**

- i. Illustrate biodegradation of hydrocarbon in detail.
- ii. Explain the causes of air pollution.

b. Answer one out of two-**(04 Marks)**

- i. Write notes on metabolic diversity in bacteria.
- ii. Give an account on bioremediation.

c. Answer any three out of five-**(03 Marks)**

- i. What is Xenobiotic Compound?
- ii. Which bacterial used for removal of industrial waste
- iii. Define Biomagnifications.
- iv. Mention name of oil degrading bacteria.
- v. Gas like Chloroflouro carbon (CFC) is responsible for.....

Question-3**Q. 3 Answer all the questions:****a. Answer one out of two-****(07 Marks)**

- i. Discuss various chemical properties of waste water.
- ii. Explain methods of treatment of solid waste.

b. Answer one out of two-**(04 Marks)**

- i. Give detail account of primary treatment process.
- ii. Write short notes on Bioplastics.

c. Answer any three out of five-

(03 Marks)

- i. Give one name of physical property of water.
- ii. What is BOD.
- iii. What is secondary treatment.
- iv. Major enzyme involve in nitrogen fixation is.....
- v. Define Bioleaching.

Question-4

Q. 4 Answer all the questions:

a. Answer one out of two-

(07 Marks)

- i. Discuss scope and application of Biostatistics.
- ii. Discuss median along with its merits and demerits.

b. Answer one out of two-

(04 Marks)

- i. Write short notes on standard deviation.
- ii. Discuss method for sample collection.

c. Answer any three out of five-

(03 Marks)

- i. Write the example of one dimensional diagram.
- ii. Define mode.
- iii. Write formula for range coefficient.
- iv. What is harmonic mean.
- v. Define kurtosis.

Question-5

Q. 5 Answer all the questions:

a. Answer one out of two-

(07 Marks)

- i. Explain Student's t-test and its application in Biology
- ii. What is ANOVA? Discuss its types and strategy for calculation?

b. Answer one out of two-

(04 Marks)

- I. Differentiate between correlation and regression.
- ii. Discuss Binomial distribution and its properties.

c. Answer any three out of five-

(03 Marks)

- i. What is regression analysis?
- ii. What is conditional probability?
- iii. What is the range of correlation coefficient?
- iv. If the mean of series of value is 10 and their standard deviation is 2, then coefficient of variation will be.....
- v. Mention use of chi-squared test.
