

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Winter 2023 Examination**

**Semester: 1**  
**Subject Code: 303144101**  
**Subject Name: Basics of Biotechnology**

**Date: 25/01/2023**  
**Time: 2.00 pm to 4.30 pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Objective Type Questions - ( Fill in the blanks, one word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) (15)**

1. Who gave the definition of Biotechnology?  
a) The European Federation of Biotechnology (EFB) b) NCBI c) National Institutes of Health (NIH)  
d) National Centre for Cell Science (NCCS)
2. Which technique is used in the Industrial effluent treatment with the help of microbial species?  
a) Bioremediation b) Phytoremediation c) Fungicide d) Bacteriocin
3. Biotechnology touched the major sectors that define human activity: food, fuel, and health.  
a) 2005 b) 2006 c) 2008 d) 2017
4. Scientists and engineers change the genetic makeup of microbial, plant, and animal cells.....  
a) To confer new characteristics of biomolecules b) To confer old characteristics of biomolecules  
c) For the generation of toxic products d) None
5. Biodiesel is produced from....  
a) Jatropha b) Mirabilis c) Sunflower d) None
6. The first antibiotic ..... was suitable for human during World War II.
7. Polymerase chain reaction (PCR) was developed in 1985 by.....
8. The term biotechnology was coined by.....
9. Abbreviation of BSL is.....
10. Biosafety level is required for high-risk exotic agents which pose risk of life threatening diseases?
11. Why Biotechnology is important?
12. Write 4 examples of Biotechnology products.
13. What do you understand by Pharmacogenetics and its role in biotechnology?
14. Differentiate between Biopharmaceuticals and Pharmaceutical.
15. Define gene therapy.

**Q.2 Answer the following questions. (Attempt any three) (15)**

- A) What are the different problems associated with biologically active products?
- B) Explain the different steps involved in the beer production with suitable flow charts.
- C) Discuss the production of therapeutic protein (e.g. Recombinant Insulin) with diagram.
- D) Discuss the different roles of Biofuels for human welfare.

**Q.3 A) Explain the molecular aspects of disease, its identification and treatment. (07)**

- B) Discuss the Biodiesel production with suitable sketch. (08)

**OR**

- B) Why vaccines are important? Draw a flow diagram for monoclonal antibodies production. (08)

**Q.4 A) Elaborate the three components central of Biotechnology with suitable sketch. (07)**

**OR**

- A) Elaborate interdisciplinary pursuit of Biotechnology. Explain different categories of vaccines. (07)

- B) What is biomass? Discuss its types. Explain Biomethane production. (08)