

15/12/23

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M. Sc. Biotechnology, Semester-I Examination, 2023
Paper Title: Fundamentals of Biotechnology
Paper Code: MBTCC-100

Time: 2.5 h

Max Marks: 60

Note: This paper has 3 Sections. A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; Section C: Answer all the questions, each question in this section has an internal choice

Abbreviations Used:

CO- Course Outcome, PO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1- Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

Section A (Attempt all questions)**(10 x 1 marks=10 Marks)**

Q. No	Questions	BTL	CLO	PLO
1.	Describe the Henderson-Hasselbalch equation for buffered solutions.	2	2	2
2.	Give the principle of Fluorescence activated cell sorting.	2,3	2	4
3.	Give three characteristics of restriction enzymes which show their potential in recombinant DNA technology.	1,2	1	6
4.	Give the cons of genetically modified foods.	1	3	4
5.	Give three areas where GMP guideline can influence the safety and quality of products.	3, 4	4	4
6.	How Single-cell proteins are developed?	4, 6	3	3
7.	What is HBsAg?	1	3	1
8.	Write the steps of pedigree analysis.	1, 2	2	2
9.	Name any two recombinant interferons.	1	3	5
10.	Write the regulators of animal cell growth in culture.	1	1	9

Section B: Long type Questions (Attempt any two out of four)**(2x15 marks=30 Marks)**

Q. No	Questions	BTL	CLO	PLO
11.	Explain how pharmacogenomics would help the doctors to recommend the correct medication and dosage on the basis of patient's genetic profile.	4, 5	1	3
12.	Discuss the mechanisms through which genetic diversity is achieved in bacterial populations, specifically exploring various processes that facilitate DNA recombination within bacterial genomes.	3, 4	2	2
13.	Describe the step-by-step procedure of making a transgenic animal.	3, 4	3	4
14.	Explain the role of Intellectual Property Rights (IPR) in protection of Biotechnological Innovations.	2, 3	4	3

Section C: Short-type Questions (Attempt all questions, each question has an internal choice)

(4 x 5 marks=20 Marks)

Q. No	Questions	BTL	CLO	PLO
15.	Give the use of gene therapy in treating various human diseases. OR Enumerate and explain in brief three different methods of cell sorting used in contemporary biological research.	3, 4	3, 2	7
16.	What are monoclonal antibodies? Give the various advantages of MABs to treat human diseases. OR Describe various methods for biological fuel generation	2, 3	3	5
17.	Why nutraceuticals are getting so much momentum nowadays? Explain. OR What are the 5 main components of good manufacturing practice?	4, 5	3, 4	6
18.	Explain how we can comply Good Laboratory Practices while doing animal studies. OR What is golden rice? Describe its significance for human health.	2, 4	3, 4	3

END OF THE QUESTION PAPER