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| --- | --- | --- |
| **UniversityofKerala** | | |
| Discipline:Biotechnology |  | Time:1Hour30Minutes(90Mins.) |
| CourseCode:UK1DSCBIT100 |  | TotalMarks:42 |
| CourseTitle:Essentials of Biotechnology |  |  |
| TypeofCourse:DSC |  |  |
| Semester:1 |  |  |
| AcademicLevel:100-199 |  |  |
| TotalCredit:4,Theory:3Credit |  |  |

Part A. 6 Marks.Time: 6 Minutes Objective Type. 1 Mark Each. Answer AllQuestions

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(Cognitive Level: Remember/Understand)

|  |  |  |  |
| --- | --- | --- | --- |
| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome(CO)** |
| 1. | Name the scientist who coined the term biotechnology | Remember | CO1 |
| 2. | List any two examples of prokaryotic vectors. | Remember | CO2 |
| 3. | Identify the transgene present in golden rice | Understand | CO3 |
| 4. | who created the first oil-degrading bacteria, also known as the "superbug": | Understand | CO3 |
| 5. | Describe the role of *Lactobacillus acidophilus* in yogurt fermentation | Understand | CO5 |
| 6. | Discuss two advantages of SCP | Understand | CO5 |

Part B. 8 Marks. Time: 24 Minutes

Short Answer. 2 Marks Each. Answer All Questions (Cognitive Level: Understand/Apply)

|  |  |  |  |
| --- | --- | --- | --- |
| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome(CO)** |
| 7. | Describe the process and significance of producing therapeutic proteins like Anti thrombin in transgenic animals. | Understand | CO3 |
| 8. | Describe the Indian government’s initiatives to promote biotechnology | Understand | CO1 |
| 9. | Artificial intelligence can revolutionize biotechnology. Examine the statement. | Apply | CO3 |
| 10. | Discuss the role of rennet in cheese production | Apply | CO5 |

Part C. 28 Marks. Time: 60 Minutes

Long Answer. 7 marks each. Answer all 4 Questions, choosing among options within each question.

(Cognitive Level: Apply/Analyse/Evaluate/Create)

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| --- | --- | --- | --- |
| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome(CO)** |
| 11. | A. Illustrate how biotechnology has transformed agriculture  Or  B. Interpret the applications of biotechnology in medicine | Apply | CO1 |
| 12. | A. Examine the characteristics of an ideal plasmid vector using pBR322 as an example  Or  B. Analyse the significance of the phrase "DNA is the molecule of heredity" in light of classic experiments | Analyze | CO2 |
| 13. | A. Examine the role of biotechnology in microbial production of enzymes involved in food industry  Or  B. Evaluate how production of citric acid using microorganism has changed the industry. How optimization of process parameters has obtained | Evaluate | CO5 |
| 14. | A. Propose a strategy to develop a transgenic plant focusing on production of a therapeutic proteins  Or  B. An industry releases toxic liquid waste material into a nearby water body. Develop a biotechnological method to remediate pollutants | Create | CO3 |



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| --- | --- | --- |
| **Cognitive**  **Level** | **Marks** | **Percentage** |
| Remember | 2 | 4.8 |
| Understand | 8 | 19.0 |
| Apply | 11 | 26.2 |
| Analyse | 7 | 16.7 |
| Evaluate | 7 | 16.7 |
| Create | 7 | 16.7 |
| **TOTAL** | **42** | **100** |

|  |  |  |
| --- | --- | --- |
| **Course**  **Outcomes** | **Marks** | **Percentage** |
| CO1 | 10 | 24 |
| CO2 | 8 | 19 |
| CO3 | 13 | 31 |
| CO5 | 11 | 26 |
| **TOTAL** | **42** | **100** |