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| **UniversityofKerala** | | |
| Discipline:Biotechnology |  | Time:1 Hour 30 Minutes (90 Mins.) |
| CourseCode:UK1MDCBIT101 |  | TotalMarks:42 |
| CourseTitle:Innovations in Biotechnology |  |  |
| TypeofCourse:MDC |  |  |
| Semester:1 |  |  |
| AcademicLevel:100-199 |  |  |
| TotalCredit:3,Theory:3Credit, Practical:0Credit |  |  |

**Part A.6Marks**.Time: 5Minutes

ObjectiveType. 1MarkEach.AnswerAllQuestions

(CognitiveLevel: Remember/Understand)

|  |  |  |  |
| --- | --- | --- | --- |
| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome(CO)** |
| 1. | Discuss the role of restriction enzymes in genetic engineering. | Remember | 2 |
| 2. | Give an example for Bioinnovation that impacts global health care sector | Remember | 1 |
| 3. | Identify a value added product generated from biowaste materials | Understand | 4 |
| 4. | Define the use of CRISPR technology | Understand | 2 |
| 5. | List important sectors of Biotechnology | Understand | 4 |
| 6. | Explain the concept of genome of an organism | Understand | 3 |

**PartB.8Marks**.Time: 24Minutes

Short Answer. 2MarksEach.AnswerAllQuestions

(CognitiveLevel:Understand/Apply)

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| --- | --- | --- | --- |
| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome(CO)** |
| 7. | Discuss how does biotechnology helps in the treatment of genetic disorders | Understand | 2 |
| 8. | Give examples for commercially successful bioproducts | Understand | 4 |
| 9. | Apply a new technological intervention for the production of improved Crop Varieties | Apply | 1 |
| 10. | Determine a technology that helps the scientists to read the genetic information carried in a DNA segment | Apply | 3 |

**Part C.28 Marks**.Time: 60 Minutes

Long Answer. 7Marks Each.Answer all 4questions, choosing among options within each question.

(CognitiveLevel:Apply/Analyse/Evaluate/ Create)

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| --- | --- | --- | --- |
| Qn.  No. | Question | Cognitive  Level | Course  Outcome(CO) |
| 11. | A. Depict h**ow biotechnology addresses food security and malnutrition challenges in developing countries**  OR  B. **Apply biotechnological innovations in polluted sites for a clean environment** | Apply | 1 |
| 12. | A. Analyze the role of genetic engineering in crop improvement  OR  B. During the last pandemic period we have witnessed the benefit of many Biotechnological innovations. Evaluate the role of biotechnology in disease diagnosis and management | Analyse | 2 |
| 13. | A. Evaluate the need of omics approaches in industrial revolution of biotechnology  OR  B. Apply an omics approach to track the response of plants to drought stress. | Evaluate | 3 |
| 14. | A. Integrate major areas of Biotechnology that may contribute to the growth of Indian Bioproduct research  OR  B. A Biotechnologist has the potential to become an innovative entrepreneur. Recognise how Biotechnological sectors merge with Industry and research | Create | 4 |

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| **Cognitive Level** | **Marks** | **Percentage** |  | **Course Outcomes** | **Marks** | **Percentage** |
| Remember | 2 | 4.8 |  | 1 | 10 | 23.8 |
| Understand | 8 | 19.0 |  | 2 | 11 | 26.1 |
| Apply | 11 | 26.2 |  | 3 | 10 | 23.8 |
| Analyse | 7 | 16.7 |  | 4 | 11 | 26.1 |
| Evaluate | 7 | 16.7 |  |  |  |  |
| Create | 7 | 16.7 |  |  |  |  |
| **TOTAL** | **42** | **100** |  | **TOTAL** | **42** | **100** |