Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17BT2016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **GENETIC ENGINEERING AND BIOETHICS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Outline the importance of the following modifying enzymes with necessary illustrations.  Nucleases | CO1 | 5 |
| b. | Alkaline Phosphatase | CO1 | 5 |
| c. | Reverse Transcriptase | CO1 | 5 |
| d. | DNA Polymerase | CO1 | 5 |
| **(OR)** | | | | |
| 2. | a. | Discuss how tandomly repeated sequences are important in DNA finger printing and wirte a note on the hybridization technique involved? | CO2 | 10 |
| b. | Elucidate about FISH with illustrations. |  | 5 |
| c. | Appraise about autordiography. | CO2 | 5 |
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| 3. | a. | Describe the properties of ideal plasmid vector and illustrate with neat diagram about the construction of PBR322. | C03 | 10 |
| b. | Infer about the replication of lamda phage and write the importance of *In vitro* mutagenesis in M13 vector. | CO3 | 10 |
| **(OR)** | | | | |
| 4. | a. | Discuss how LEU2 gene is used as a selectable marker in YEp13 shuttle vector? | CO3 | 10 |
| b. | Enumerate the importance of expression vectors with examples. | CO3 | 10 |
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| 5. |  | Appraise the importance of RAPD in genstic diversity among the strains of plant species with examples and illustrations. | CO4 | 20 |
| **(OR)** | | | | |
| 6. | a. | Discuss the principle, steps and chemicals involved in PCR. | CO4 | 10 |
| b. | Demostrate the role of Reverse Transcriptase PCR and Nested PCR with neat sketches. | CO4 | 10 |
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| 7. |  | Discuss in detail about the physical, chemical and biological methods of transformation with neat illustrations. | CO5 | 20 |
| **(OR)** | | | | |
| 8. | a. | Ethical issues in Gentic Engineering – Discuss. | CO6 | 10 |
| b. | Assess in detail about the biosafety regulations in rDNA technology. | CO6 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Demonstrate wooden block techniques used for recombinant screeing in PBR322. | CO3 | 10 |
| b. | Lac selection in pUC Vectors. | CO3 | 10 |