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

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

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| **Code :** | **17AG1007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PRINCIPLES OF GENETICS AND GENOMICS** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (20 X 1 = 20 MARKS)** | | | |
| 1. | When was G.J.Mendel’s work on pea plant rediscovered? | CO1 | 1 |
| 2. | Who used the electrophoration technique for direct gene transfer in plants? | CO1 | 1 |
| 3. | Mention the name given to tiny living things by Leeuwenhoek. | CO1 | 1 |
| 4. | What is Lamarckism? | CO1 | 1 |
| 5. | Define the homozygous condition of alleles. | CO1 | 1 |
| 6. | What is Locus? | CO1 | 1 |
| 7. | What is the F2 ratio produced in codominance and incomplete dominance conditions? | CO1 | 1 |
| 8. | What are modifying genes? | CO1 | 1 |
| 9. | Define polytactyly. | CO1 | 1 |
| 10. | Which molecule is known as the chemical energy ‘currency’ of the cell? | CO1 | 1 |
| 11. | Name a chemical mutagen which is specific to cytoplasmic gene. | CO2 | 1 |
| 12. | Name the type of inheritance followed by cytoplasmic genes. | CO2 | 1 |
| 13. | List out any two sources of mutation. | CO2 | 1 |
| 14. | Give some examples for chemical mutagens. | CO2 | 1 |
| 15. | Which cell organelle is called as ‘suicidal bags of the cell’ and why? | CO2 | 1 |
| 16. | Name a plant derived alkaloid which arrests the spindle fibre formation. | CO3 | 1 |
| 17. | List out the Purine bases. | CO2 | 1 |
| 18. | Write the function of mRNA ‘Cap’. | CO2 | 1 |
| 19. | What is a test cross? | CO1 | 1 |
| 20. | Who proposed the ‘chromosome theory of linkage’? | CO2 | 1 |

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| **PART – B (10 X 5 = 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | What is a chromosome map? Enumerate the procedure for chromosome mapping. | CO3 | 5 |
| 22. | Explain the Dominance epistasis. | CO1 | 5 |
| 23. | Reason out the multiple coat colour variations produced in rabbit. | CO1 | 5 |
| 24. | List out the characteristics of quantitative inheritance. | CO1 | 5 |
| 25. | Summarize the main features of pseudogenes. | CO2 | 5 |
| 26. | Explain ‘Ideograms’. | CO2 | 5 |
| 27. | Write down the significances of Meiosis. | CO2 | 5 |
| 28. | Write a brief note on ‘RNA processing’. | CO2 | 5 |
| 29. | List out the different stages of protein synthesis and explain the transcription. | CO2 | 5 |
| 30. | Comment on the functions of different types of RNAs. | CO2 | 5 |
| 31. | Enumerate the different numerical variations of chromosomes. | CO3 | 5 |
| 32. | Define polyploidy and give its classification. | CO3 | 5 |

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| **PART – C (2 X 15 = 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
| 33. | a. | Explain the Lac-operon model with good illustrations. | CO2 | 8 |
| b. | Enumerate the role of polyploidy in agriculture. | CO3 | 7 |
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| 34. | a. | Explain the double helical structure of DNA with neat sketches. | CO2 | 8 |
| b. | How will you induce polyploidy in crop plants? | CO3 | 7 |
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| 35. | a. | Outline the process of Protein synthesis. | CO1 | 10 |
| b. | Explain the semiconservative replication of DNA. | CO2 | 5 |