



Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2018
First Degree Programme Under CBCSS
Zoology
Core Course - VI
ZO 1541 : GENETICS AND BIOTECHNOLOGY
(2015 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

- I. Answer the following questions. (In **one** or **two** sentences. **One** mark **each**)
- 1) What are plasma genes ?
 - 2) Explain reciprocal cross.
 - 3) What are alleles ?
 - 4) Give an example for allosomal trisomy.
 - 5) Define Barr body.
 - 6) What is cDNA ?
 - 7) Comment on reverse transcriptase.
 - 8) What are homologous chromosomes ?
 - 9) What is humulin ?
 - 10) What is gene doping ? (10×1=10 Marks)
- II. Answer **any eight** of the following. (**Not** to exceed **one** paragraph. **Each** carries **two** marks)
- 11) What is pleiotropism ?
 - 12) Concisely explain dosage compensation.
 - 13) Write notes on sex limited genes.
 - 14) Comment on somatic mutation.
 - 15) Differentiate between phenotype and genotype.



- 16) Give a brief account on Phenylketonuria.
- 17) What is DNA vaccine ?
- 18) Write notes on patenting of DNA sequences.
- 19) Comment on shuttle vectors.
- 20) Distinguish between plasmid and cosmid.
- 21) Briefly explain reproductive cloning.
- 22) Comment on monoclonal antibodies. **(8×2=16 Marks)**

III. Answer **any six** of the following. (**Not to exceed 120 words. Each** carries 4 marks)

- 23) Discuss multiple alleles with reference to human blood group.
- 24) Explain genic balance theory of sex determination in *Drosophila*.
- 25) What are Kappa particles ? Explain their inheritance in *Paramecium*.
- 26) Write brief notes on : a) Down syndrome b) Turner syndrome.
- 27) Describe briefly the chromosomal mechanism of sex determination in man.
- 28) Give an account of restriction endonucleases.
- 29) Explain Southern blotting.
- 30) Briefly explain structural aberrations of chromosomes.
- 31) Explain the Sanger method for DNA sequencing. **(6×4=24 Marks)**

IV. Answer **any two** of the following. (**Each** carries 15 marks)

- 32) Write an essay on the potential hazards of biotechnology. Briefly explain its bioethical issues.
- 33) Define genetic engineering. Describe the process and application of recombinant DNA technology.
- 34) Describe a typical Mendelian dihybrid cross experiment and explain the principle of independent assortment. Add a note on Correlation between Mendel's theory and chromosome behaviour.
- 35) Discuss the phenomenon of linkage and crossing over. Add a note on linkage map. **(2×15=30 Marks)**