

Reg. No. :

Name :

**V Semester B.Sc. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2024
(2019 to 2022 Admissions)
CORE COURSE IN ZOOLOGY
5B08 ZLG : Genetics**

Time : 3 Hours

Max. Marks : 40

Instruction : Give illustrations and figures wherever necessary.

- I. Essay questions (**Each** question carries **8** marks). Answer **any two** : (2×8=16)
- 1) Explain the chromosomal mechanisms of sex determination found in animals.
 - 2) What is crossing over ? What are the factors that affect crossing over ? Write about its significance.
 - 3) Explain the inheritance pattern of coat colour in rabbits.
 - 4) Give an account of four autosomal recessive diseases in humans.
- II. Short essay questions (**Each** question carries **4** marks). Answer **any two** : (2×4=8)
- 5) Explain the genetics of the ABO blood group system in humans.
 - 6) Describe the various chromosome banding techniques.
 - 7) What are the characteristics of autosomal dominant inheritance ? Mention two examples.
- III. Short answer questions (**Each** question carries **2** marks). Answer **any six** : (6×2=12)
- 8) Explain lethal genes.
 - 9) Describe multifactorial inheritance.

P.T.O.

K24U 2774

-2-



- 10) Write note on gynandromorphs.
 - 11) Explain sex linked inheritance.
 - 12) Explain SRY gene.
 - 13) What are complementary genes ? Give an example.
 - 14) What are frame shift mutations ?
 - 15) Write a note on maternal inheritance.
- IV. Multiple choice questions (**Each** question carries **0.5** mark). Answer **all** : (8×0.5=4)
- 16) Three children in a family have blood groups O, AB and B respectively. Select from the following, the genotypes of their parents.
 - a) $I^A i$ and $I^B i$
 - b) $I^A I^B$ and ii
 - c) $I^B I^B$ and $I^A I^A$
 - d) $I^A I^A$ and $I^B i$
 - 17) A hereditary disease which is never passed from father to son is
 - a) Y-chromosomal linked disease
 - b) X-chromosomal linked disease
 - c) Autosomal linked disease
 - d) None of these
 - 18) As the distance between genes increases, recombination frequency.
 - a) Increases
 - b) Decreases
 - c) Is not influenced
 - d) None of these
 - 19) Which one of the following shows recessive epistasis ?
 - a) Coat colour in mice
 - b) Flower colour in sweet pea
 - c) Alkaptonuria
 - d) Human skin colour



-3-

K24U 2774

- 20) Improvement of human race genetically is
 - a) Eugenics
 - b) Euthenics
 - c) Euphenics
 - d) Pharmacogenetics
- 21) The number of Barr bodies in an individual with Turner's syndrome is

| | |
|---------|------------------|
| a) Zero | b) One |
| c) Two | d) None of these |
- 22) Pick out the wrong statement
 - a) Mutation theory was proposed by Hugo de Vries
 - b) In *Drosophila*, females have X/A ratio between 0.5 and 1
 - c) A test cross is a backcross
 - d) In Pedigree chart, circles represent females and squares represent males
- 23) Sex chromosome complement of Klinefelter's syndrome is

| | | | |
|--------|-------|--------|-------|
| a) XXY | b) XO | c) XYY | d) XY |
|--------|-------|--------|-------|