

**PG CBCS**  
**M.SC. Semester-III Examination, 2021**  
**ZOOLOGY**  
**PAPER: C-ZOO 304**  
**(Genetics and Haematology)**

Full Marks: 40

Time: 2 Hours

**Write the answer for each unit in separate sheet**

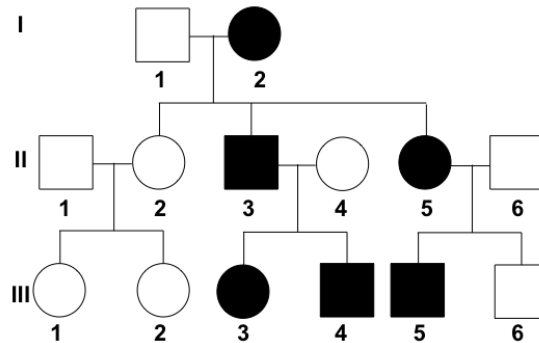
**UNIT: C-ZOO 304.1**

**(Genetics)**

Answer any **TWO** questions of the following:

2X10=20

1. i) Briefly describe the role of Y chromosome in sex determination in human.
- ii) What do you think is the most likely mode of inheritance?

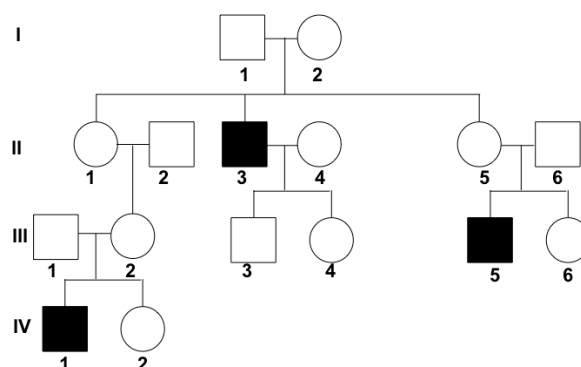


5+5

2. i) Differentiate complete linkage from incomplete linkage in *Drosophila*.
  - ii) Color blindness is inherited as a recessive trait on the X chromosome and is known in genetics as X-linked recessive inheritance. Suppose we have a hypothetical situation in which mother is a carrier for the trait and father is normal. Using binomial expansion, calculate the probability of having five boys, two with the trait and three without the trait.
3. i) What is the role of autosome in sex determination in *Drosophila* sp?
  - ii) What do you think is the most likely mode of inheritance?

4+6

5+5

**(P.T.O)**

(2)

4. A corn plant known to be heterozygous at three loci is testcrossed. The progeny phenotypes and numbers are as follows:

p<sup>+</sup> r<sup>+</sup> j<sup>+</sup> - 179

p r j - 173

p<sup>+</sup> r j - 46

p r<sup>+</sup> j<sup>+</sup> - 52

p<sup>+</sup> r j<sup>+</sup> - 22

p r<sup>+</sup> j - 22

p<sup>+</sup> r<sup>+</sup> j - 4

p r j<sup>+</sup> - 2

Total - 500

Give the gene arrangement, map distances, coefficient of coincidence and interference.

3+4+2+1

5. i) What is shine-dalgarno sequence? What is its importance?  
 ii) State the process of amino-acylation of t RNA.  
 iii) State the role of topoisomerase in DNA replication in E. coli.  
 iv) What is the importance of chisqnae analysid?

2.5X4

### UNIT: C-ZOO 304.2

#### (Haematology)

Answer any **TWO** questions from the following:

2X10=20

1. Define Haemopoiesis. Mention different type of blood cells and their functions. 2+8
2. Define anaemia. Classify it. Briefly describe any two types of anaemia. 2+3+5
3. What is Erythroblastosis foetalis? Define leukemia. Give a short note on leukocytosis.  
Differentiate CML from AML. 3+2+2.5+2.5
4. Give a short note on Haemostasis. Differentiate thrombosis from haemorrhage.  
Schematically represent the intrinsic and extrinsic pathway of blood coagulation. 3+2+5
5. Schematically represent the process of erythropoiesis. Name a congenital bleeding disorder and mention its symptoms. Give a short note on DIC and Thrombocytopenic pupura. 3+3+4

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