PG/IIIS/ZOO/304.1 & 304.2/23
(Day)(Old)(CBCS)

M.Sc. 3rd Semester Examination, 2023

ZOOLOGY

PAPER—304(Day)(Old)(CBCS)

Full Marks : 50

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

PAPER-304.1

(*Genetics*)

1. Answer any *four* questions from the following : 2×2

(*a*) State Mendel's law. Give example.

(*b*) What is non-disjunction ? Cite example.

(*c*) Name two recessive sex chromosomal mutation in Drosophila.

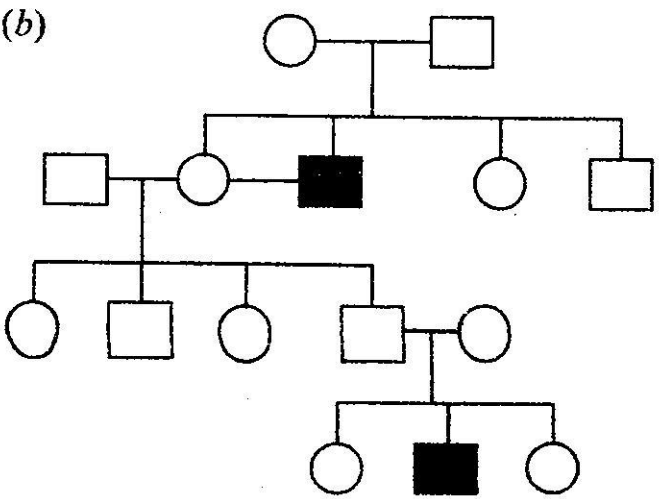
(*d*) Name two dominant mutations in human.

2. Answer any *two* questions from the following : 4×2

(*a*) Calculate the gene frequency of L^M and L^N from the following population.

L^ML^M	L^ML^N	L^NL^N
200	250	120

(*b*)



Analyse the pedigree. Mention whether trait is autosomal or sex linked ?

(*c*) Can two haemophilic parents produce a normal child ? Haemophilia is a sex linked recessive disorder in human. Can two normal parents produce a haemophilic child. Explain both cases.

(*d*) What is Hardy-Weinberg principle ? What are the conditions required for Hardy -Weinberg equlibrium.

3. Answer any *one* question from the following : 8×1

(*a*) Explain Mendel's law of independent assortment with proper example. 8

(*b*) (*i*) How many types of gametes can be produced from the following crosses :

Aa x Bb ;

ABC/abc ⊗ ABC/abc

(*ii*) A test cross is performed between heterozygous grey long Drosophila and black vestigial Drosophila.

$$\frac{B \quad Vg}{b \quad vg} \otimes \frac{b \quad vg}{b \quad vg}$$

B = grey, V_g = long wing
b = black, v_g = Vestigial

Grey is dominant over black
Long wing is dominant over vestigial.

50 wild type Drosophila 60 black vestigial 30 black 25 vestigial are obtained. Are these results consistant with the hypothesis that body color and wing shape are controlled by independently assorted gene ? 3 + 5

PAPER-304.2

(*Haematology*)

4. Answer any *two* questions from the following : 2 × 2

(*a*) State the characters of Haematopoitic stem cell. 2

(*b*) State the function of macrophage. Name two resident macrophages. 1 + 1

(*c*) What is anemia ? What are the different types of anemia ? 1 + 1

(*d*) What is primary lymphoid organ in mammals ? 2

5. Answer any *two* questions from the following : 4×2

(*a*) Describe the process of thrombocytosis with diagram. 4

(*b*) Write down the etiology of iron deficiency anemia. 4

(*c*) Describe the primary haemostasis with proper diagram. 4

(*d*) Describe the components of blood with flow chart. 4

6. Answer any *one* question from the following : 8×1

(*a*) What are the different stages of chronic myeloid leukemia. Name two chemotherapeutic drugs against the disease. State difference between chronic myeloid leukemia and acute myeloid leukemia.

$4 + 2 + 2$

(*b*) State the role of erythropoietin in erythropoiesis in mammals. State difference of RBC of mammals from amiphibia. Write down the steps of blood coagulation.

$2 + 2 + 4$

[Internal Assessment – 10 Marks]