

Total pages: 2

**PG CBCS**  
**M.Sc. Semester-I Examination, 2021**  
**ZOOLOGY**  
 PAPER: ZOO 195 (PRACTICAL)  
**(IMMUNOLOGY, METHODS IN BIOLOGY, CELL BIOLOGY & CYTOGENETICS)**  
**Full Marks: 50** **Time: 3 Hours**

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

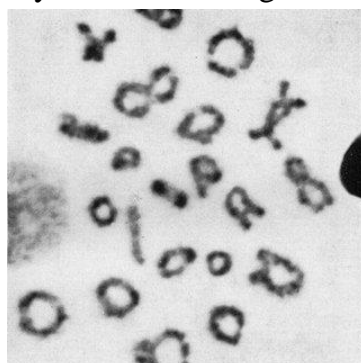
Answer any **TWO** questions of the following:

**2X25=50**

1. a. Write the principle and procedure of cytological preparation of polytene chromosome from *Drosophila* larva. Draw and label polytene chromosome. 5+10+5
- b. Identify the cell cycle division stage with proper reason. 5



2. a. Write the principle and procedure of characterization of macromolecule through Gel electrophoresis. 5+10
- b. In rabbits, the dominant allele *B* causes black fur and the recessive allele *b* causes brown fur; for an independently assorting gene, the dominant allele *R* causes long fur and the recessive allele *r* (for *rex*) causes short fur. A homozygous rabbit with long, black fur is crossed with a rabbit with short, brown fur, and the offspring are intercrossed. In the F<sub>2</sub>, what proportion of the rabbits with long, black fur will be homozygous for both genes? 10
3. a. Write the working principle of isolation of macrophage from living system Draw a labelled diagram of macrophage. 5+10+5
- b. Identify the cell cycle division stage with proper reason. 5



(P.T.O.)

(2)

4. a. Write the principle of determination of human blood group. How do you determine your blood group? 5+10
- b. A geneticist crossed wild, gray-colored mice with white (albino) mice. All the progeny were gray. These progeny were intercrossed to produce an F<sub>2</sub>, which consisted of 198 gray and 72 white mice. Propose an hypothesis to explain these results, diagram the crosses, and compare the results with the predictions of the hypothesis. 10

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