2022

(February)

ZOOLOGY

(Honours)

(Cell and Molecular Biology and Genetics)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer Question No. **1** which is compulsory and *any* **four** from the rest

1. Write in brief on any *three* of the following : 4×3=12

(a) Central dogma of molecular biology

(b) Cistron

(c) Down's syndrome

(d) Antibodies

(e) Applications of electron microscopy

2. What is genetic code? Elucidate the codons and anti-codons. Discuss the characteristics of genetic code. 2+3+6=11

3. What is lac operon? Explain the process involved in lac operon with the help of diagrams. 2+9=11

4. What is DNA damage? Mention the different sources of DNA damage. Discuss the repair mechanisms of DNA damage with suitable diagrams. 2+3+6=11

5. What do you understand by extranuclear inheritance? Discuss the roles of Kappa particles in paramecium with the help of diagrams. 4+7=11

6. Differentiate between humoral and cell-mediated immunity. Write in detail the characteristics of antigens. 5+6=11

7. What is chromatography? Describe the principle involved and the biological applications of gel filtration chromatography. 2+5+4=11

8. Write short notes on any *two* of the following : 5½×2=11

(a) Enzymes involved in DNA replication in prokaryotes

(b) Overlapping genes

(c) Antigen-antibody interaction

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