

## Model Question

### Tribhuvan University

Bachelor Level (4 Yrs) Sc. & Tech.

Full Marks: 100

Course Title: Physiology, Genetics and Molecular Biology

Pass Marks: 35

Course No. : B. Sc. Zool. 301

Year:

### III

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Illustrate your answers with suitable diagrams wherever necessary.

#### Group 'A'

#### Long answer questions

Attempt any *TWO* questions only.

(2×10=20)

1. Define enzymes. Describe the general properties, factors influencing enzymatic activities and mechanism of action of enzymes.
2. What do you mean by cardiac output? Describe the conducting system of the heart.
3. What do you mean by primary endocrine glands? Describe the location, structure and role of hormones secreted by pituitary gland.

#### Group 'B'

Attempt any *TWO* questions only.

(2×10=20)

4. Describe the structure and function of Mitochondria.
5. What is chromosomal aberration? Describe the types and effects of chromosomal aberration.
6. What is RNA polymerase? Describe the mechanism of prokaryotic and eukaryotic transcription.

#### Group 'C'

#### Short answer questions

Attempt any *EIGHT* questions only.

(8×5=40)

7. Describe tracheal respiration.
8. Discuss ABO blood groups in human.
9. Explain the mechanism of hearing and balance.
10. Mention the role of kidney in the maintenance of electrolytic balance.
11. Describe the fluid mosaic model of cell membrane.
12. Differentiate between cilia and flagella.
13. Define crossing over. Mention its types and significance.
14. Describe X-Y linked gene inheritance.
15. Define gene therapy and mention its application.
16. Give an account of Polymerase Chain Reaction (PCR).

#### Group 'D'

17. Give very short answers of the following (any eight) (8×2.5=20)

- i. Oxygen transport
- ii. Role of Iodine and Sodium in nutrition
- iii. Differentiate between Haemoerythrin and Chlorocruorin
- iv. Significance of meiosis
- v. Differentiate between Ammonotelic and Ureotelic animal

- vi. Function of lysosome
- vii. ELISA test
- viii. Gene cloning
- ix. Differentiate between Eugenies and Euphenics
- x. Structure of messenger RNA (mRNA)