Time: 2:40 Hours **SUBJECTIVE** **Marks: 68**

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

(SECTION – I)

2. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i. How negative feedback mechanism helps body to regulate temperature?
ii. How do bony fishes excrete extra salt in marine environment?
iii. Give the adaptations of plants in freezing temperature for thermoregulation.
iv. Differentiate between phototropism and chemotropism.
v. What are synovial joints? Name its types.
vi. What is the cause of muscle fatigue?
vii. Highlight the uses of clone cells for investigating use of pharmaceutical products.
viii. Differentiate between oviparous and viviparous animals.
ix. What are planktons? Give their types.
x. What is layering? Give one example of each layer.
xi. Differentiate between afforestation and reforestation.
xii. Define pollution. Write down names of its types.

3. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i. Give the difference between chlorosis and etiolation.
ii. How is it that different nerve fibres transmit different modalities of sensation?
iii. What is Nissl's granules? Give their relation to Golgi bodies.
iv. Differentiate between phenotype and genotype.
v. Explain gene pool for a single particular trait.
vi. What is probability?
vii. How to get a gene of interest?
viii. What are plasmids? Give their types and functions.
ix. What are $RFLP_S$? Give their importance.
x. Define and explain community ecology.
xi. Discuss abiotic components of an ecosystem.
xii. Differentiate between hydrosere and xerosere succession.

4. Write short answers to any SIX questions. **(2 x 6 = 12)**

i. How thickness of plant body increases?
ii. How missing organs of an adult animal develop? Discuss it.
iii. In which direction DNA polymerase synthesizes new strands of DNA. Comment on it.
iv. What is nucleosome?
v. Differentiate between conservative and semi-conservative DNA replication.
vi. What is metastasis?
vii. Distinguish apoptosis from necrosis.
viii. What are vestigial organs? Give examples.
ix. Differentiate between endangered from threatened species.

(SECTION - II)

5. **(a)** What are different problems associated with kidney? How can they be cured? **(4)**
(b) Explain grazing in detail. Discuss ill effects of over-grazing? **(4)**

6. **(a)** Demonstrate the ultrastructure of myofilaments. **(4)**
(b) Describe Watson and Crick's model of DNA. **(4)**

7. **(a)** How action potential is produced in a neuron? Discuss different factors involved in action potential. **(4)**
(b) Explain the phenomenon of eutrophication. **(4)**

8. **(a)** Write down a note on seed dormancy. **(4)**
(b) Explain epistasis with the help of an example. **(4)**

9. **(a)** Describe the role of nucleus in development. **(4)**
(b) When did Charles Darwin presented his theory "The origin of species"? Highlight the main points of this theory. How was this theory modified later? **(4)**