

[Time: 2½ Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:**
1. All questions are **compulsory**.
 2. All questions carry equal marks.
 3. **Draw diagrams and charts wherever necessary.**

Q.1 A) Explain any one out of two of the following.

- i) Plastide
- ii) Photosynthesis in Bacteria.

02**B)** Attempt any one out of two of the following.

- i) Explain the role of Absciscic Acid and Ethylene.
- ii) Describe the biosynthesis of cellulose from glucose.

04**C)** Attempt any one out of two of the following.

- i) Describe the cyclic and non cyclic photophosphorylation.
- ii) Discuss the Process of nitrogen fixation and its significance.

06**Q.2 A)** Explain any one out of two of the following.

- i) Role of Progesterone
- ii) Physiological functions of thyroid hormones.

02**B)** Attempt any one out of two of the following.

- i) Enumerate pancreatic hormones and discuss the biosynthesis of insulin.
- ii) Describe the metabolic effects of catecholamines.

04**C)** Attempt any one out of two of the following.

- i) Define secondary messengers. Discuss the role of any three second messengers in response to hormone action.
- ii) Give an account of Growth Hormones and related disorders.

06**Q.3 A)** Explain any one out of two of the following.

- i) Composition of bone.
- ii) Structure of nerve tissue.

02**B)** Attempt any one out of two of the following.

- i) Describe the Structure and role of Vitamin C in collagen synthesis.
- ii) Discuss the factors affecting bone metabolism.

04**C)** Attempt any one out of two of the following.

- i) Discuss the role of GABA, Acetylcholine and Dopamine as a neurotransmitters
- ii) Describe the role of various proteins in muscle contraction and relaxation.

06

Q.4 A) Explain any one out of two of the following.

- i) Ionophore
- ii) Chaperones

02

B) Attempt any one out of two of the following.

- i) What are luciferins? Discuss the mechanism of Bioluminescence with suitable example.
- ii) Explain the Host-Guest chemistry with any two examples.

04

C) Attempt any one out of two of the following.

- i) Give an account of nitrogen fixation and the role of nitrogenase.
- ii) Explain enzyme mimicking using Cram's protease model.

06

Q.5 A) Attempt any four sub questions (A) or (B) and (C) or (D) and (E) or (F) and (G) or (H).

A) Explain Hatch and Slack cycle.

03

OR

B) What is photoperiodism? Give its significance

03

C) Explain the mechanism behind activation of protein kinase C

03

OR

D) Describe various ways of classification of hormones

03

E) Explain the mechanism of bone remodeling

03

OR

F) Describe structure of muscle fiber

03

G) Explain biomimicking of antibodies

03

OR

H) Write a note on cyclodextrin and cyclopeptide.

03