

THE SECOND PRE-BOARD EXAMINATION 2007-08

Class XII (ISC)

BIOLOGY Paper I (Theory)

Time: Three hours

Maximum marks: 70

Instructions:

- * Answers to this paper must be written on the answer script provided separately.
- * All subsections of each question must be answered in the correct order.
- * You are **NOT** allowed to write during the first 15 minutes. This time is to be spent in reading the question paper.
- * The time given at the head of this paper is the time allowed for writing the answers.
- * Please do not write anything on your question paper except your name and roll number.
- * The intended marks for questions or parts of questions are given in brackets [].
- * This paper consists of **two** parts, **Part I** and **Part II**. All questions of Part I are **compulsory**. Part II is divided into **two** sections, **Section A** and **Section B**. Attempt any **three** questions from **Section A** and **two** questions from **Section B**.

Part I [20 marks]

Attempt **all** questions.

Question 1

- (a) Answer the following:
- (i) Why are “day neutral” plants called “intermediate” plants? [1]
 - (ii) Why is propagation through grafting not successful in monocots? [1]
 - (iii) What happens to the water potential of pure water when solutes are added to it? [1]
 - (iv) Why do nerve impulses travel in one direction only? [1]
 - (v) Why do terrestrial animals excrete hypertonic urine? [1]
- (b) Mention one significant difference between each of the following:
- (i) Collagen fibres and elastin fibres (structure) [1]
 - (ii) B-cells and T-cells (site of maturation) [1]
 - (iii) Digestion and assimilation [1]
 - (iv) Lymphocyte and Basophil (function) [1]
 - (v) Haemopoiesis and Haemolysis. [1]
- (c) Give the scientific term for each of the following statements:
- (i) The preservation of germplasm at ultra low temperature [½]
 - (ii) Removal of pituitary gland [½]
 - (iii) The ability of isolated cells to regenerate into whole plants [½]
 - (iv) Stiffening of muscles soon after death [½]
 - (v) The symbiotic association of fungi with the roots of higher plants. [½]

- (d) Mention the most significant function / role of the following:
- (i) Pericycle (in roots) [½]
 - (ii) Oxytocin [½]
 - (iii) Azotobacter. [½]
- (e) Name the scientists associated with the following:
- (i) Histogen theory [½]
 - (ii) Germ theory of disease [½]
 - (iii) Malarial parasite [½]
 - (iv) Cohesion-Tension theory. [½]
- (f) Elaborate the following:
- (i) DDT [½]
 - (ii) IAA [½]
 - (iii) RuBP [½]
 - (iv) ECG. [½]
- (g) Define the following:
- (i) Hydroponics [½]
 - (ii) Palaeontology [½]
 - (iii) Hypoxia [½]
 - (iv) Micturition. [½]

Part II [50 marks]

Answer any five questions.

Section A [30 marks]

Attempt any three questions.

Question 2

- (a) Give a schematic representation of non-cyclic photophosphorylation. [4]
- (b) What is Geitonogamy? [2]
- (c) State the significance of osmosis. [4]

Question 3

- (a) (i) Draw a labelled diagram of the longitudinal section of the human kidney. [4]
- (ii) Name the hormones which regulate urine formation. [1]
- (b) Briefly describe the events that occur during the luteal phase of the menstrual cycle. [3]
- (c) Give four differences between sympathetic and parasympathetic nervous systems. [2]

Question 4

- (a) Give the anatomical (internal structure) differences between a dicot stem and a monocot stem. [4]
- (b) Give an account of the different types of soil water. [4]
- (c) State the importance (one point) and one deficiency symptom of the following in our body:
- (i) folic acid (ii) phosphorus [2]

Question 5

- (a) State the symptoms of ageing in man. [3]
- (b) Describe the “feedback mechanism of regulation of hormones”. [3]
- (c) Give the chemical events that take place during muscle contraction. [4]

Question 6

- (a) (i) Draw a labelled diagram showing the V.S. of human brain. [3]
(ii) State two important functions of cerebrum. [1]
- (b) Give four compatible differences between red muscle fibre and white muscle fibre. [4]
- (c) Explain how vitamin A deficiency affects the vision in human beings. [2]

Section B [20 marks]

Attempt any two questions.

Question 7

- (a) (i) Give an account of Darwin’s finches. [3]
(ii) Why are biofertilizers preferred to chemical fertilizers? [2]
- (b) Give a brief account of Rh blood group incompatibility. [3]
- (c) Give four uses of jute. [2]

Question 8

- (a) State four causes and four consequences of population explosion. [4]
- (b) What are the important changes in the evolution of the modern horse from the Eohippus (ancestral horse)? [3]
- (c) What is addiction? State any four reasons of drug addiction. [3]

Question 9

- (a) Explain the Miller and Urey experiment on the origin of life. [4]
- (b) What is sickle cell anaemia? Why has natural selection not eliminated sickle cell anaemia? [4]
- (c) Give the difference between:
 - (i) Transition and Transversion [1]
 - (ii) Homologous and Analogous organs. [1]

Question 10

- (a) Give an account of the population growth curves. [3]
- (b) Name the causative agents, symptoms and cure for the following diseases:
 - (i) Malaria
 - (ii) Diphtheria
 - (iii) Filaria
 - (iv) Polio. [4]
- (c) What are the chromosomal similarities found in apes and man? What do such similarities indicate? [3]

Similarity

- 1. Filaria
- 2. Polio
- 3. Polio