CLASS XI – ANNUAL EXAMINATION

BIOLOGY

PAPER – 1

(THEORY)

***(Maximum Marks*: 70)**

(Time allowed: Three hours)

(Candidates are allowed additional 15 minutes for only reading the paper.
They must NOT start writing during this time)

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*This paper comprises **TWO PARTS** – Part I and Part II.*

*Answer **all** questions.*

*Part I contains **one** question of 20 marks having five subparts.*

Part II consists of Sections A, B and C.

*Section A contains **seven** questions of **two** marks each*

*Section B contains **seven** questions of **three** marks each, and*

*Section C contains **three** questions of **five** marks each.*

Internal choices have been provided in two questions in Section A, two questions in Section B and in all three questions of Section C.

PART I (20 Marks)

*Answer **all** questions.*

Question 1

(a) Answer the following questions briefly and to the point: **[8×1]**

(i) Draw the *molecular structure* of the amino acid serine.

(ii) What is a *telocentric chromosome*?

(iii) Name the process by which mineral ions move against the concentration gradient.

(iv) Which structure maintains the protoplasmic continuity between the adjacent plant cells?

(v) What is the use of *auxanometer*?

(vi) Name the edible part of *mango*.

(vii) What is the function of *neuroglial cells*?

(viii) Why do *nerve impulses* travel in one direction only?

This Paper consists of 5 printed pages and 1 blank page.

(b) Each of the following questions has four choices. Choose the correct option in each case: **[4×1]**

(i) Lactose is an example of:

(1) Disaccharide.

(2) Protein.

(3) Monosaccharide.

(4) Polysaccharide.

(ii) Curdling of milk in the stomach is due to the action of:

(1) Pepsin.

(2) Renin.

(3) Rennin.

(4) Casein.

(iii) Synandrous androecium is found in:

(1) *Hibiscus.*

(2) *Pisum sativum.*

(3) *Cucurbita.*

(4) Sunflower.

(iv) *Adiantum* belongs to the class:

(1) Psilopsida.

(2) Lycopsida.

(3) Sphenopsida.

(4) Pteropsida.

(c) Give one significant contribution of each of the following scientists: **[2×1]**

(i) D. I. Ivanowsky.

(ii) Van Neil.

(d) Define the following: [3×1]

(i) Vernalization.

(ii) Olfactory reception.

(iii) Transduction.

(e) Answer the following: [3×1]

(i) What happens to the water potential of pure water when solutes are added to it?

(ii) What would happen, if a long day plant is exposed to day-lengths, longer than a certain critical minimum?

(iii) Define *Systematics*.

PART II

SECTION A (14 Marks)

*(Answer **all** questions)*

Question 2 [2]

(a) Give *any four* properties of enzymes.

OR

(b) Give *any four* functions of Proteins.

Question 3 [2]

Name the group of plants which are called the 'amphibians' of the plant kingdom. Give a reason to justify your answer.

Question 4 [2]

Give *one* difference between each of the following pairs:

(i) Dormancy and Quiescence.

(ii) Absorption spectrum and Action spectrum.

Question 5 [2]

Answer the following briefly:

(i) Name the gaseous plant hormone.

(ii) Name the monomer of starch.

(iii) Give one example of a plant showing C_4 cycle.

(iv) What is the dental formula of an adult human being?

Question 6 [2]

Draw a well labelled diagram of an animal cell having 3 pairs of chromosomes in metaphase I of Meiosis.

Question 7 [2]

Give *any four* differences between male and female cockroach.

Question 8 [2]

(a) Explain *ultrafiltration.*

OR

(b) Explain the mechanism of *clotting of blood.*

SECTION B (21 Marks)

*(Answer **all** questions)*

Question 9 [3]

Answer the following:

(a) State the cell theory.

(b) What are satellite chromosomes?

(c) Give the function of Golgi complex in a cell.

Question 10 [3]

(a) Give a brief account of *any three* types of archaebacteria with reference to their habitat.

OR

(b) Name the *three* classes of Algae. Mention the major photosynthetic pigments of each class.

Question 11 [3×1]

Explain the mechanism of opening and closing of stomata according to K^+ ion transport mechanism.

Question 12 [3]

Draw a well labelled diagram of T.S. of monocot stem.

Question 13 [3]

(a) Give a brief explanation of facilitated diffusion with reference to symport, antiport and uniport.

OR

(b) Discuss the effects of temperature, pH and substrate concentration on the activity of enzymes.

Question 14 [3]

What is an inflorescence? What are the two main types of inflorescence? Give the definition and one example of each type.

Question 15 [3]

Explain how CO_2 is transported in blood from the tissues to the lungs.

SECTION C (15 Marks)

*(Answer **all** questions)*

Question 16 [5]

(a) Draw a neat labelled diagram of L.S. of heart.

OR

(b) Draw a neat labelled diagram of the membranous labyrinth.

Question 17 [5]

(a) Describe the sliding filament theory of muscle contraction.

OR

(b) Describe the role played by pancreas in the digestion of food.

Question 18 [5]

(a) Give a graphic representation of Krebs' cycle.

OR

(b) Give a graphic representation of C_3 cycle.