ICSE Board
Class X Biology

Time: 2 hrs **Total Marks: 80**

General Instructions:

1. Answers to this paper must be written on the paper provided separately.
*2. You will **not** be allowed to write during the first **15** minutes.*
This time is to be spent in reading the question paper.
3. The time given at the head of the paper is the time allotted for writing the answers.
*4. Attempt **all** questions from **Section I** and **any four** questions from **Section II**.*
5. The intended marks of questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)

*Attempt **all** questions from this section.*

Question 1

(a) Give the function of the following:

(i) Prostate gland
(ii) Placenta
(iii) Pacemaker
(iv) Corpus callosum
(v) Fovea [5]

(b) Name the following:

(i) The iron-containing pigment in erythrocytes.
(ii) The structure which brings urine from the kidney to the urinary bladder.
(iii) The site of light reaction.
(iv) The tissue which conducts manufactured food in plants.
(v) The fully developed part of the ovary containing the mature egg. [5]

(c) State whether the following statements are True or False. Correct and rewrite the false statements by changing the last word only.

(i) The laws of heredity were proposed by Morgan.
(ii) Abscisic acid is the only hormone which is a gas at ordinary temperature.
(iii) Cells which have lost their water content are said to be deplasmolysed.
(iv) Cones enable us to see three primary colours.
(v) The fusion product of sperm and ovum is called the zygote. [5]

(d) Choose the correct alternative from the choices given below each statement so as to complete its meaning:

(i) Spraying leaves with phenyl mercuric acetate causes
1. Increased photosynthesis
2. Decreased photosynthesis
3. Increased transpiration
4. Decreased transpiration

(ii) Distribution of stomata per unit area of leaf and their size affect the rate of
1. Respiration
2. Transpiration
3. Guttation
4. Absorption

(iii) Which of the following processes needs the involvement of energy?
1. Diffusion
2. Osmosis
3. Passive transport
4. Active transport

(iv) Which of the following is not a vestigial organ in man?
1. Wisdom teeth
2. Vermiform appendix
3. Pelvic girdle
4. Pinna

(v) The correct meaning of reproduction is
1. Increase in population
2. Increase in the number of parents
3. Production of new individuals
4. Production of identical individuals [5]

(e) Give technical terms for the following:

(i) The process of WBC squeezing out of capillaries.

(ii) The process in which water absorption needs metabolic energy.

(iii) The stage where chromosomes lie on the equator of the cell.

(iv) The alternative forms of the same gene.

(v) The process of origin of new species by gradual modification. [5]

(f) Given below are sets of 5 terms each. Without changing the first term, rearrange the remaining four so as to be in logical sequence according to the directions given in brackets for each. One has been done for you as an example.

Example: Pathogen, active immunity, produces antibodies, lymphocytes, antigen (defence mechanism of the body)

Answer: Pathogen → antigen → lymphocytes → produces antibodies → active immunity

(i) Destarched plant, iodine added, washed in water, a leaf boiled in alcohol, placed in sunlight
(testing for presence of starch)

(ii) Interphase, Anaphase, Prophase, Telophase, Metaphase
(sequential stages in Karyokinesis)

(iii) Seminiferous tubule, penis, urethra, epididymis, vas deferens
(course of passage of sperms in man)

(iv) Pinna, cochlea, tympanum, ear ossicles, auditory canal
(route through which vibrations of sound enter the ear)

(v) Soil water, xylem, cortex, endodermis, root hair (conduction of water) [5]

(g) Complete the following by selecting the correct word from those given in the bracket.

(Stomata, Less, Hydrostatic, Hydathodes, More, Guttation)
In some plants, droplets of water appear along the margin. This water comes out through special pores called _____, and the process of escape of water is known as _____. This process is due to increased _____ pressure and _____ transpiration. [5]

(h) Name the hormone which regulates each of the following:

(i) Urinary elimination of water

(ii) Storage of glucose as glycogen

(iii) Milk secretion

(iv) Heart beat and blood pressure

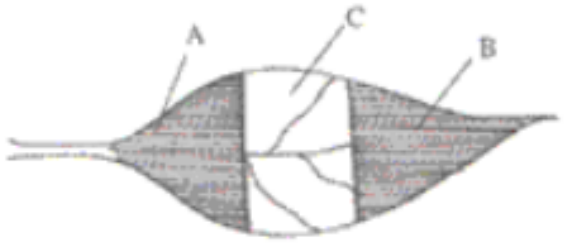
(v) Maturation of Graafian follicle [5]

Section II [40 Marks]

*Attempt any **four** questions from this section*

Question 2

(a) The figure shows a leaf after an experiment.



(i) What is the aim of the experiment?
(ii) What colours do parts A and B show after the experiment?
(iii) What will be the colour of part C?
(iv) Which chemical is used for this experiment for a proper result? [5]

(b)

(i) What is photophosphorylation?
(ii) Name two surgical methods to control population in humans.
(iii) State two characteristics of *Australopithecus*.
(iv) What is a synapse?
(v) What is the role of the ciliary muscles? [5]

Question 3

(a) The figure shows an endocrine gland.

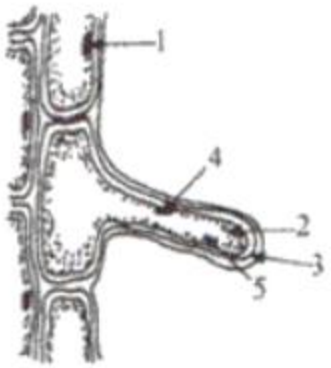
(i) Name the gland.
(ii) Write the location of the gland.
(iii) Name the two hormones produced by it.
(iv) State one function of each of the above mentioned hormones.
(v) Label the parts 1 and 2. [5]

(b) Answer briefly:

(i) What is tropism? Give one example of tropic movement.
(ii) What are ear ossicles?
(iii) What does the peripheral nervous system include?
(iv) What is diapedesis? [5]

Question 4

(a) The figure alongside is a root hair:



(i) Label the parts 1–5.
(ii) How do parts 3, 4 and 5 help in the absorption of water?
(iii) What would happen if fertilisers are sprinkled near the root hair in the soil?
(iv) Define plasmolysis. [5]

(b) Give biological reasons for the following:

(i) On a bright sunny day, the leaves of certain plants roll up.
(ii) Marine fish burst when placed under tap water.
(iii) The blood in arteries flow in spurts.
(iv) Roots are said to be negatively phototropic.
(v) Lysosomes are termed suicidal bags of a cell. [5]

Question 5

(a)

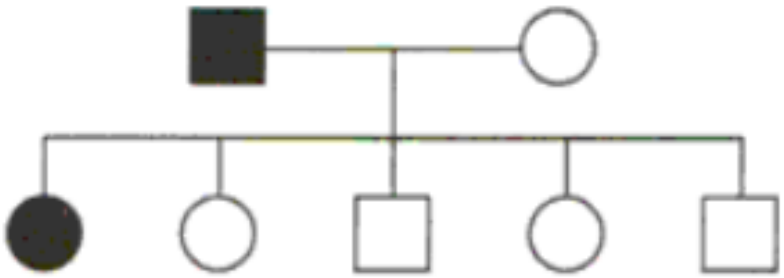
(i) Draw a diagram of the telocentric chromosome.
(ii) State the difference between phenotype and genotype.
(iii) Write the steps carried out in the starch test of a leaf. [5]

(b) Answer the questions which follow with reference to the human ear:

(i) Give the technical term for the structure found in the inner ear.
(ii) Name the three small bones present in the middle ear. What is the biological term for them collectively?
(iii) Name the part of the ear associated with (1) static balance, (2) hearing and (3) dynamic balance.
(iv) Name the nerve which transmits messages from the ear to the brain. [5]

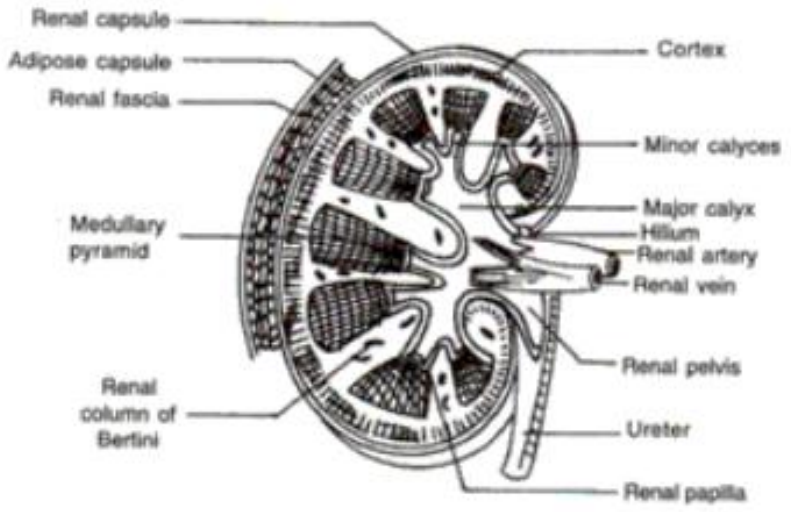
Question 6

(a) A family consists of two parents and their five children, and the pedigree chart below shows the inheritance for the trait colour blindness.



(i) Who is a colour blind parent?
(ii) How many daughters and sons have been born in the family?
(iii) What does child 1 indicate about this trait?
(iv) Complete the depiction of all probabilities of the trait among the children 2–5 in the chart.
(v) On which chromosome is the gene of this trait located? [5]

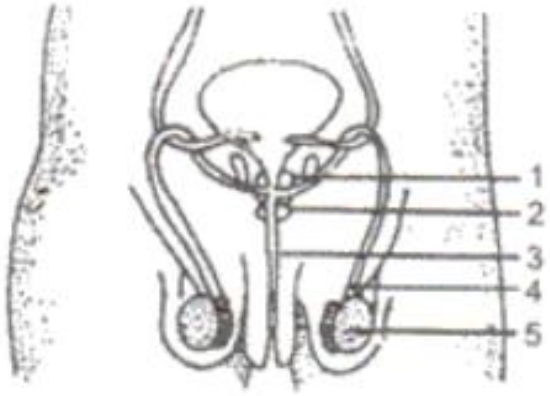
(b) Given below is the diagram of a human kidney, cut open longitudinally. Answer the following:



(i) Give the definition of excretion.
(ii) Name the unit of the kidney.
(iii) Why does the cortex of the kidney show a dotted appearance?
(iv) List the functions of the kidney. [5]

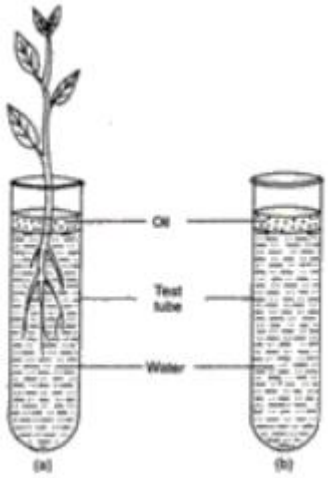
Question 7

(a) Given below is the outline of the male reproductive system:



(i) Name the parts labelled 1–5.
(ii) State the functions of the prostate gland and sperm duct.
(iii) Why is structure 5 present outside the body in the scrotal sac? [5]

(b) The figure below represents the setup at the start of a certain experiment to demonstrate the activity of plants:



(i) What is the aim of the experiment?
(ii) Why has oil been put in each test tube?
(iii) What will be the observations in both the test tubes after about 2–3 days?
(iv) Give reasons to explain any change observed as answered in (iii) above.
(v) Why has the test tube (b) without the plant been taken in the experiment? [5]