

ICSE Board
Class X Biology
Sample Paper - 4

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 for questions or parts of questions are given in brackets [].
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SECTION I (40 Marks)

Attempt **all** questions from this section.

Question 1

(a) Name the following:

- (i) Growth-retarding hormone in plants.
- (ii) The point where crossing over occurs.
- (iii) The condition in which both the alleles are identical.
- (iv) The type of blood group in which both A and B antigens are present.
- (v) The part of the brain which controls the activities of internal organs. [5]

(b) Give technical terms for the following:

- (i) Organs which are of no use to the possessor.
- (ii) The pressure at the time when the fresh blood is pumped into the arteries.
- (iii) The shortest phase of mitosis.
- (iv) The condition due to a blockage in the coronary artery.
- (v) Non-identical twins produced by the fertilisation of two eggs. [5]

(c) Name the structures and their location:

- (i) The gland which secretes calcitonin.
- (ii) The site in the eye where the maximum number of sensory cells is present.
- (iii) The structure responsible for controlling micturition.
- (iv) The photoreceptor cells which are sensitive to colour.
- (v) They help in the transmission of impulses. [5]

(d) Given below are five sets with four terms each. In each set, one term is odd. Choose the odd one out from the terms given and name the category to which the other three belong.

Set	Odd Term	Category
(i) Pinna, Tympanum, Ear ossicles, Lacrimal gland		
(ii) Cerebrum, Ossicles, Cerebellum, Medulla Oblongata		
(iii) Sneezing, Blinking, Typing, Coughing		
(iv) Plasmolysis, Diffusion, Imbibition, Osmosis		
(v) Fallopian tube, Uterus, Vas deferens, Vagina		

[5]

(e) Complete the following statements:

- (i) The transition between Neanderthal man and modern man is _____.
- (ii) The oxygen released during photosynthesis comes from _____.
- (iii) GA₃ stands for _____.
- (iv) A highly muscular chamber of the heart is _____.
- (v) The duct which leads from the epididymis to the urethra is the _____.

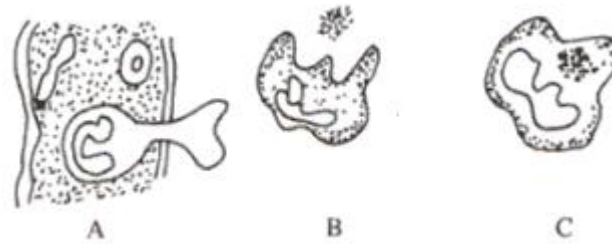
[5]

(f) Select and write the terms which do not fit with the description:

- (i) Reflex arc - Receptor, Sensory nerve, Cerebellum, Motor nerve, Effector organ
- (ii) Conduction and amplification of sound - Incus, Stapes, Malleus, Eustachian tube
- (iii) Transpiration - Stomata, Cuticle, Hydathodes, Lenticels
- (iv) Female reproductive system - Fallopian tube, Cowper's gland, Uterus, Vagina
- (v) Mitosis - Leptotene, Metaphase, Anaphase, Telophase

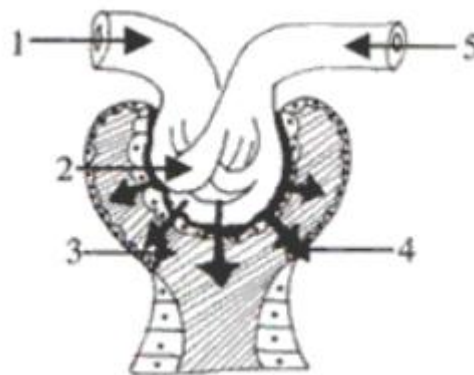
[5]

(g) The adjoining figure is a series of diagrams A to C representing the activity of a certain kind of cells in the human body:



- (i) Name the structure seen in A.
- (ii) What significant activity is shown in A? Give the technical term for this activity.
- (iii) Describe the events and their significance shown in B and C. [5]

(h) The adjoining diagram represents a part of the nephron.



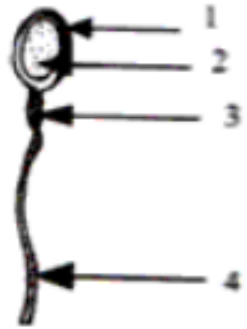
- (i) Name the structure.
- (ii) Label the parts 1-5.
- (iii) What is the function of part 5?
- (iv) What do the arrows indicate?
- (v) What is dialysis? Under what conditions is it performed? [5]

Section II [40 Marks]

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

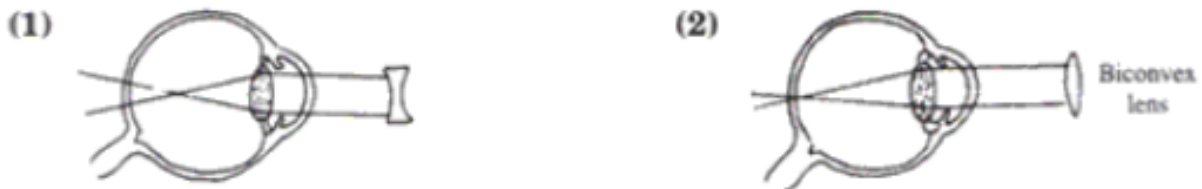
Question 2

(a) The diagram alongside represents the structure of the human sperm.



- (i) Label the parts 1–4.
- (ii) What is the number of chromosomes present in the nucleus of the sperm?
- (iii) State the functions of parts 1, 3 and 4.
- (iv) Where is sperm produced in man? [5]

(b) The given diagrams represent the correction of certain eye defects.



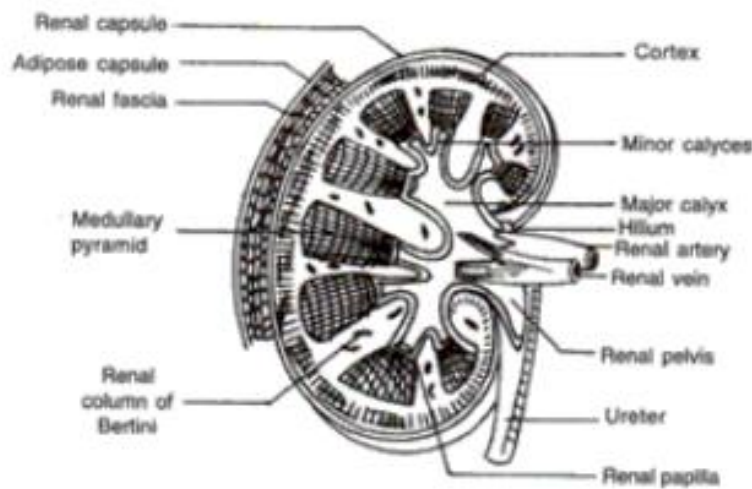
- (i) What are the eye defects corrected in these two diagrams?
- (ii) According to the diagrams, how are these defects corrected?
- (iii) What are the main causes of these defects? [5]

Question 3

(a)

- (i) What is phosphorylation?
- (ii) Name two surgical methods which are used to control the population in humans.
- (iii) What is thigmotropism?
- (iv) What is a synapse?
- (v) What is the role of the ciliary muscles? [5]

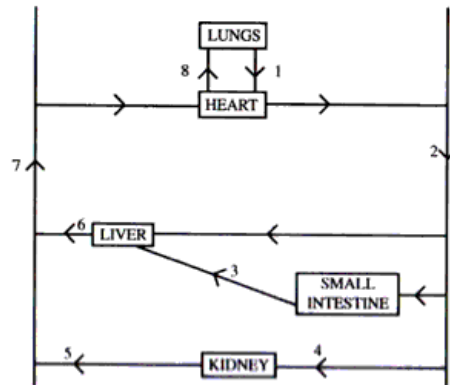
(b) Observe the figure carefully and answer the questions based on it.



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

Question 4

(a) Given below is a simplified pathway of the circulatory system of man.



- (i) Name the blood vessels marked 1 to 8.
- (ii) Name the chamber of the heart which receives blood from '1' and pumps blood into the blood vessel '8'.
- (iii) Mention two structural differences between blood vessels '7' and '2'. [5]

(b) Answer briefly:

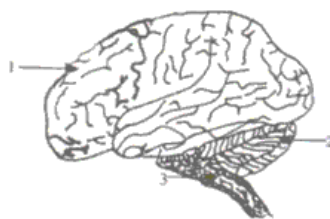
- (i) What is root pressure?
- (ii) What is synapsis?
- (iii) Mention any one significance of turgidity.
- (iv) What is the effect of adrenaline hormone?
- (v) Why were *Homo erectus* so called? [5]

Question 5

(a)

- (i) Draw a diagram of the experimental setup to show that oxygen is evolved during photosynthesis.
- (ii) What is the biosynthetic phase? [5]

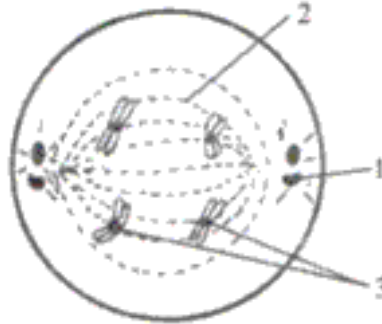
(b) The figure shows the human brain.



- (i) Label the parts 1-3.
- (ii) What are receptors?
- (iii) What will happen if part '2' is damaged? [5]

Question 6

(a) The figure represents a stage of cell division.



- (i) Name the stage.
- (ii) Name the parts 1–3.
- (iii) Mention the changes which occur during this stage.
- (iv) Name the next stage. [5]

(b)

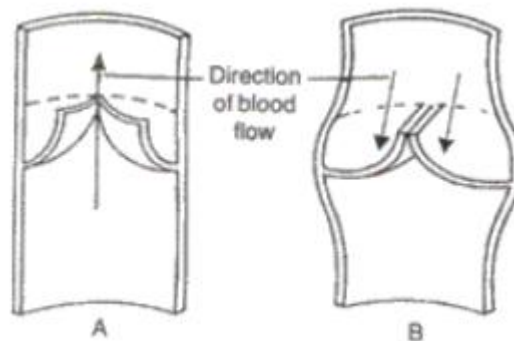
- (i) Explain with the help of a chart what the colour of a child's hair will be if the father has got a dominant gene for black hair and the mother has a recessive gene for brown hair?
- (ii) Explain the following terms:
 - 1. Laws of inheritance
 - 2. Identical twins
- (iii) Define the term heredity. [5]

Question 7

(a) Differentiate between the following pairs on the basis of what is given in brackets:

- (i) Lymphocytes and neutrophils (Structure of the nucleus)
- (ii) Beginning of ventricular systole and end of ventricular systole
(Type of heart sound)
- (iii) Prostate gland and Cowper's gland (Nature of secretion)
- (iv) Rod cells and cone cells (Pigment)
- (v) Simple goitre and exophthalmic goitre (Cause of disorder) [5]

(b) The diagram below represents a certain category of blood vessels showing the role of special structures in their walls.



- (i) Name the kind of blood vessels shown.
- (ii) Name the structure shown inside the blood vessels.
- (iii) Describe the role of these structures.
- (iv) Are these structures present in any other kind of blood vessel? If so, name it.
- (v) Towards which side of the figure (top or bottom) is the heart located? [5]