

ICSE Board
Class X Biology
Sample Paper - 6

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 [].

SECTION-I (40 Marks)

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

Question 1

- (a)** Given below are six sets with four terms each. In each set one term is odd. Identify the odd one and name the category to which the remaining three belong. One example has been done for you. [5]

No.	Set	Odd one	Category
	Cell wall, large vacuole, plastids, centrosome	centrosome	Parts of plant cell
(i)	Cerebrum, cerebellum, thalamus, hypothalamus		
(ii)	Ovary, ureter, fallopian tube, uterus		
(iii)	Adrenal gland, liver, thyroid gland, pituitary gland		
(iv)	Malleus, pinna, incus, stapes		
(v)	Haemophilia, colour blindness, albinism, night blindness.		

- (b)** State whether the following statements are true or false. If false, write the correct form of the statement by changing the **first or last word** only.

- (i) The resting stage in mitosis is called interphase.
- (ii) Photosynthesis occurs in all the cells of the plant.
- (iii) The pituitary gland is both exocrine and endocrine in function.
- (iv) Twining of tendrils around the support is an example of thigmotropism.
- (v) All voluntary actions are controlled by the cerebellum. [5]

(c) State the exact location of the following:

- (i) Chloroplast
- (ii) Incus
- (iii) Corpus callosum
- (iv) Guard cells
- (v) Pulmonary semilunar valve

[5]

(d) What do the following abbreviations stand for:

- (i) IUD
- (ii) ABA
- (iii) GA₃
- (iv) NMEP
- (v) BOD

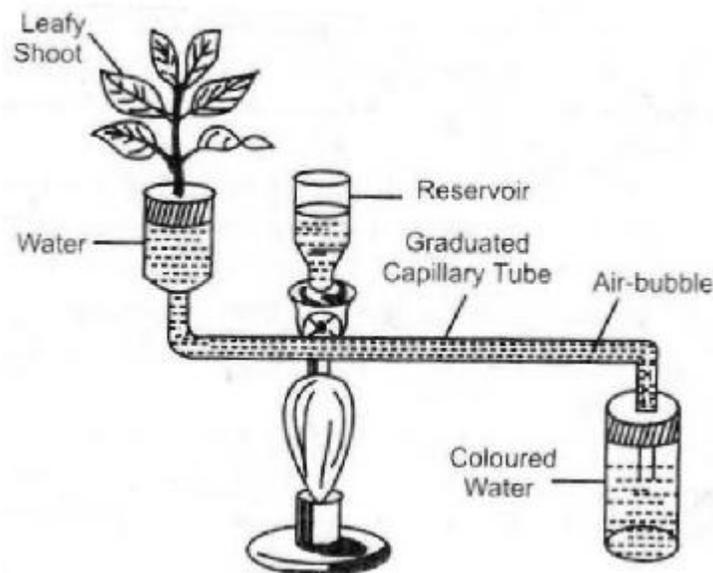
[5]

(e) Define the terms:

- (i) Menopause
- (ii) Transpiration
- (iii) Tonicity
- (iv) Plasmolysis
- (v) Cytokinesis

[5]

(f) Given below is an apparatus used to study a particular process in plants. Study the same and answer the questions that follow.



- (i) Name the apparatus.
- (ii) Mention one limitation of this apparatus.
- (iii) Which phenomenon is studied with the help of this apparatus?
- (iv) What is the function of the part marked reservoir?
- (v) What is the role of the air bubble in the experiment?

[5]

(g) Given below is an example of a certain structure and its special functional activity:
Example: (O) Ribosomes and Protein synthesis. Based on a similar pattern complete the following:

- (i) Hypothalamus and _____.
- (ii) Suspensory ligaments and _____.
- (iii) Semi circular canals and _____.
- (iv) Mitochondria and _____.
- (v) Seminiferous tubules and _____.

[5]

(h) Choose the correct option from the following:

- (i) The organism studied for industrial melanism was a:
 - (A) Butterfly
 - (B) Moth
 - (C) Honeybee
 - (D) Cockroach
- (ii) The part of the human eye where the rod and cone cells are located is the
 - (A) Retina
 - (B) Cornea
 - (C) Choroid
 - (D) Sclera
- (iii) A plant is kept in a dark cupboard for 48 hours before conducting any experiment on photosynthesis to:
 - (A) Remove the starch from the plant.
 - (B) Ensure that starch is not translocated from the leaves.
 - (C) Remove the chlorophyll from the leaf of the plant.
 - (D) Remove the starch from the experimental leaf.
- (iv) The expanded form of NADP is
 - (A) Nicotinamide adenosine dinucleoside phosphate
 - (B) Nicotinamide adenine dinucleotide phosphate
 - (C) Nicotinamide adenine dinucleolus phosphate
 - (D) Nicotinamide adenosine dinucleolus phosphate
- (v) A reflex arc in man is best described as the movement of stimuli from the
 - (A) Receptor cell, sensory neuron, relaying neuron, effector muscles
 - (B) Receptor cell, efferent nerve, relaying neuron, muscles of the body
 - (C) Receptor cell, spinal cord, motor neuron, relaying neuron
 - (D) Receptor cell, synapse, motor neuron, relaying neuron

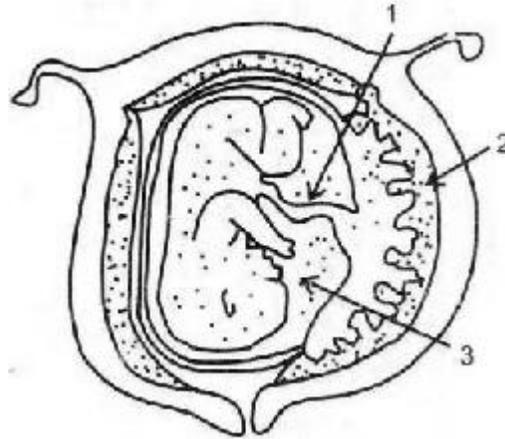
[5]

Section II [40 Marks]

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

Question 2

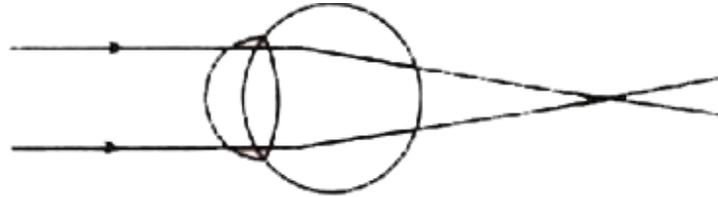
- (a) Given below is the diagram of a developing human foetus in the womb. Study the same and then answer the questions that follow.



- (i) Name the part labelled 1.
 - (ii) Mention any two functions of the part labelled 2.
 - (iii) Explain the role played by the part labelled 3.
 - (iv) What is the normal gestation period (in days) of the developing foetus? [5]
- (b) Differentiate between the following pairs on the basis of what is mentioned in brackets:
- (i) Natality and mortality (definition)
 - (ii) Stoma and stroma (describe its structure)
 - (iii) Acromegaly and cretinism (symptoms)
 - (iv) Transpiration and guttation (structures involved)
 - (v) Diabetes mellitus and diabetes insipidus (reason/cause). [5]

Question 3

(a) Given below is a diagrammatic representation of a defect of the human eye.



- (i) Identify the defect.
- (ii) Mention two reasons for the above defect.
- (iii) State how the defect can be rectified.
- (iv) Name the part responsible for maintaining the shape of the eyeball. [5]

(b) Give reasons for the following:

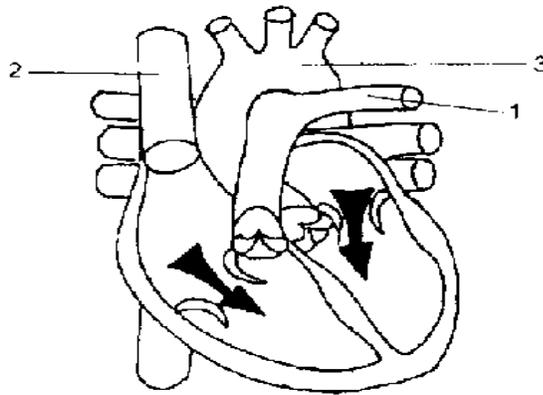
- (i) People living in hilly regions usually suffer from simple goitre.
- (ii) Urine is slightly thicker in summer than in winter.
- (iii) Potato cubes when placed in water become firm and increase in size.
- (iv) A matured mammalian erythrocyte lacks a nucleus and mitochondria.
- (v) Photosynthesis is considered as a process supporting all life on earth. [5]

Question 4

(a) A homozygous plant having round (R) and yellow (Y) seeds is crossed with a homozygous plant having wrinkled (r) and green (y) seeds.

- (i) What is the scientific name of the plant on which Mendel conducted his hybridization experiments?
- (ii) State the genotype of the F₁ generation.
- (iii) What is the dihybrid phenotypic ratio and the phenotype of the offspring of the F₂ generation when two plants of the F₁ generation are crossed?
- (iv) Name and state the law which explains the dihybrid ratio.
- (v) State the possible combinations of gametes which can be obtained from an F₁ hybrid. [5]

(b) The diagram given below represents the human heart in one- phase of its functional activities. Study the same and answer the questions that follow.



- (i) Name the phase.
- (ii) Label the parts 1, 2, and 3.
- (iii) Which part of the heart is contracting in this phase? Give a reason to support your answer.
- (iv) Draw a well labelled diagram of part 1 and 2 showing the structural differences between them. [5]

Question 5

(a) Give the biological/technical terms for the following:

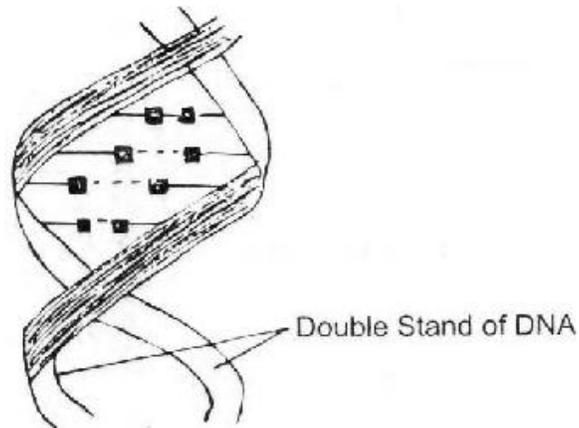
- (i) Ancestor of man who stood erect and resembled modern man.
- (ii) A constituent which causes pollution.
- (iii) The onset of menstruation in a young girl.
- (iv) A structure which connects the placenta with the foetus.
- (v) The fluid present between the layers of the meninges.
- (vi) The permanently open structures which are seen on the bark of an old woody stem.
- (vii) The biological process which is the starting point of the food chain.
- (viii) The change of activity in an organism due to a stimulus.
- (ix) An antiseptic substance present in tears.
- (x) A solution in which the relative concentration of water molecules and the solute on either side of the cell membrane is the same. [5]

(b)

- (i) What are vestigial organs? State their importance.
- (ii) Explain the term evolution.
- (iii) State two functions of auxins. [5]

Question 6

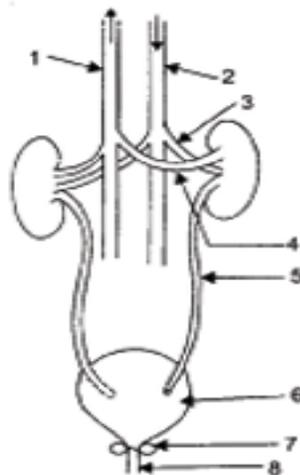
(a) Given below is a diagram of a double helical structure of DNA.



- (i) Name the four nitrogenous bases which form a DNA molecule.
- (ii) Give the full form of DNA.
- (iii) Name the unit of heredity.
- (iv) Mention two points of difference between mitosis and meiosis. [5]

(b) The diagram given below shows the excretory system in humans. Study the same and answer the questions:

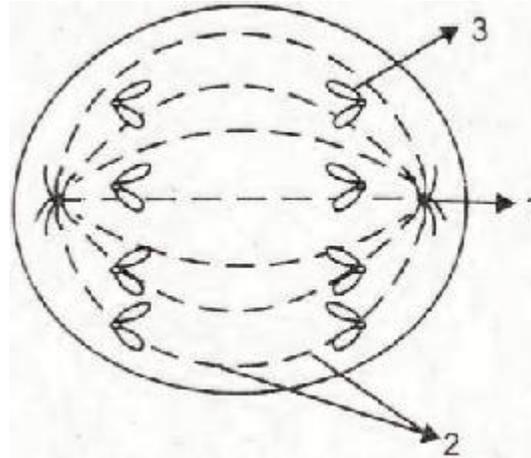
- (i) Name the parts labelled 1, 2, 3 and 4.
- (ii) Give the main functions of the parts labelled 5, 6, 7 and 8.



- (iii) Name the endocrine gland which could be added in the diagram and state its location/position. [5]

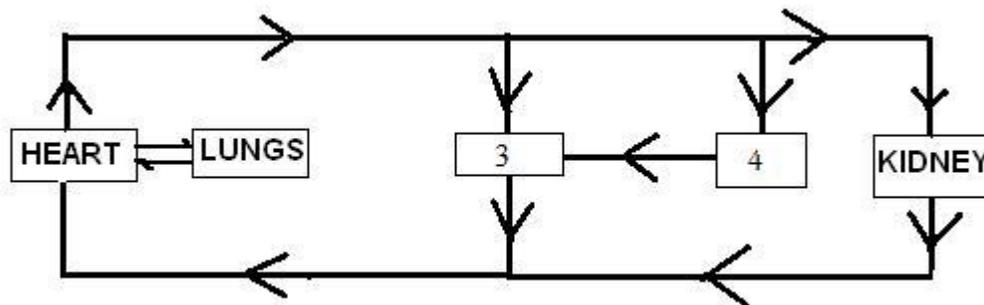
Question 7

(a) The diagram given below represents a stage during the mitotic cell division in an animal cell.



- (i) Identify the stage. Give a reason to support your answer.
- (ii) Name the parts labelled 1, 2, 3.
- (iii) What is the chromosome number of the cell?
- (iv) Draw a neat, labelled diagram of the cell as it would appear in the next stage. Name the stage. [5]

(b) Observe the diagram carefully and answer the questions given below:



- (i) Name the parts 3 and 4.
- (ii) Why is the blood going to 3 from 4?
- (iii) Which blood vessel carries blood from 4 to 3?
- (iv) What is this type of system known as? [5]