

**ICSE Board  
Class X Biology  
Sample Paper - 3**

**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)** Name the following:

- (i) The plant used by Mendel in his experiments.
- (ii) The process by which the aerial parts of a green plant gives out water as water vapour.
- (iii) The inorganic ion present in chlorophyll.
- (iv) Structures present on the leaves through which the exchange of gases occurs.
- (v) The stage of cell division during which the nuclear membrane and nucleolus reappear. [5]

**(b)** State one difference in each of the following with respect to the aspect stated within the brackets.

- (i) Mitosis and meiosis (chromosome number)
- (ii) Cranial and spinal nerves (total number in adults)
- (iii) Tubectomy and vasectomy (parts operated)
- (iv) Colour blindness and night blindness (caused due to)
- (v) Cerebrum and spinal cord (arrangement of neurons) [5]

**(c)** The first pair in the following lists indicates the kind of relationship which exists between both the items. Rewrite and complete the second pair on a similar basis.

- (i) Ear: Hearing: Tongue: \_\_\_\_\_.
- (ii) Birth rate: Natality: Death rate: \_\_\_\_\_.
- (iii) Female reproductive cell: Ovum: Male reproductive cell: \_\_\_\_\_.
- (iv) Degenerative diseases: Parkinson's disease: Allergies: \_\_\_\_\_.
- (v) Darwin: Theory of Natural Selection: Lamarck: \_\_\_\_\_ [5]

**(d)** Name the following and state where they are found.

- (i) The site of initiation of cell division in an animal cell.
- (ii) The site of light reaction of photosynthesis.
- (iii) The site of production of thyroxine hormone.
- (iv) The organ which magnifies sound vibrations.
- (v) The gland which produces the fight or flight hormone. [5]

**(e)** Give appropriate terms for each of the following:

- (i) The onset of the reproductive phase in a young female.
- (ii) The rupture of the follicle and the release of the ovum from the ovary.
- (iii) The monthly discharge of blood and disintegrated uterine tissues in the human female.
- (iv) Movement of plant parts in response to water.
- (v) The attachment of the developing zygote (blastocyst) to the uterine wall. [5]

**(f)** State whether the following statements are True or False. Correct the false statement and rewrite:

- (i) Chordae tendineae in the heart hold the apices of valves in position.
- (ii) Cells which have lost their water content are said to be deplasmolysed.
- (iii) Cones enable us to see three primary colours.
- (iv) The product of fusion of the sperm and the ovum is called the zygote.
- (v) Lamarck is regarded as Father of Evolution. [5]

**(g)** In the box given below is a list of biological terms which can be used to complete the statements which follow. Select the appropriate term from the box and rewrite the completed statement. You may use a term only once.

Concave, Neuron, Lactic acid, Glucose, Animal waste, Gestation, Nerve, Nephron, Myopia, DDT, Pregnancy, Convex, *Homo sapiens*, *Ramapithecus*

- (i) The type of lens used to correct myopia is \_\_\_\_.
- (ii) The basic unit of the human brain is the \_\_\_\_.
- (iii) The scientific name of man is \_\_\_\_.
- (iv) A non-degradable pollutant is \_\_\_\_.
- (v) The period of complete development of the foetus till birth is termed \_\_\_\_ [5]

(h) Match the items in Column I with that which is most appropriate in Column II.

Column I	Column II
(1) Pacemaker	a. Associated with static body balance
(2) Stroma	b. Chordae tendineae
(3) Afferent nerve	c. Site of light reaction
(4) Prolactin	d. Motor neuron
(5) Sacculus	e. SA node
	f. Stimulates production of milk by the mammary gland
	g. Site of dark reaction
	h. Transmits impulses from the receptor organ to the spinal cord
	i. Secreted by the anterior lobe of the pituitary gland
	j. Transfers impulses from the spinal cord to the muscles

[5]

**Section II [40 Marks]**

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

**Question 2**
**(a)**

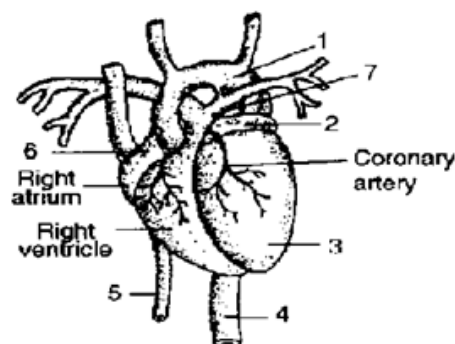
- (i) Give the functions of the following hormones:
1. Oxytocin
  2. Thyroxine
  3. Vasopressin
- (ii) Mention any two effects of radioactive pollution on human health. [5]

**(b)**

- (i) What is eutrophication? How does it affect aquatic life?
- (ii) Draw a diagram of the human eye as seen in a vertical section and label the parts which suit the following functions/descriptions:
1. The layer which prevents reflection of light.
  2. The structure which alters the focal length of the lens.
  3. The region of distinct vision.
  4. The part which transmits the impulse to the brain.
  5. The outermost transparent layer in front of the eye lens.
  6. The fluid present in the anterior part of the eye in front of the eye lens. [5]

**Question 3**
**(a)** Answer the following briefly.

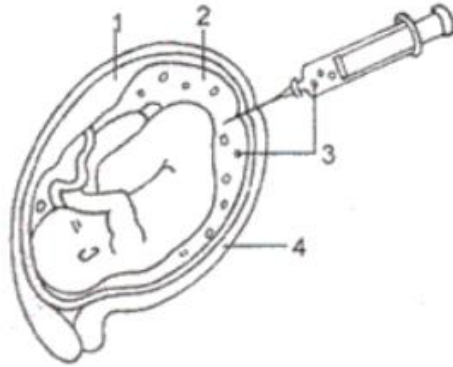
- (i) Mention the two principles through which Lamarck explained his ideas.
- (ii) Mention any two control measures to reduce noise pollution.
- (iii) What is apical dominance? [5]

**(b)** The given diagram shows the external features of the heart.


- (i) Name the parts 1-7.
- (ii) What happens if the coronary artery gets an internal clot?
- (iii) What type of blood does '5' carry?
- (iv) Mention one structural difference between '5' and '4'. [5]

**Question 4**

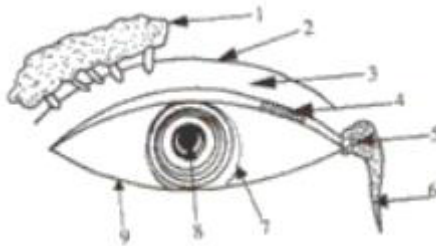
**(a)** The figure given below represents a technique:



- (i) Name the process.
- (ii) Name the fluid being taken out through the syringe.
- (iii) How is this process helpful?
- (iv) How is it misused?
- (v) Label the parts 1-4.

[5]

**(b)** The figure given below shows the structure of a mammalian eye.

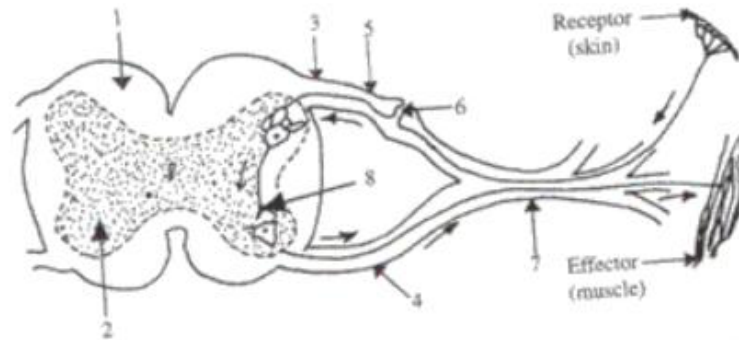


- (i) Label the parts 1-9.
- (ii) State the functions of parts 1, 2 and 7.
- (iii) What special advantages do human beings derive from having both the eyes facing forward?

[5]

**Question 5**

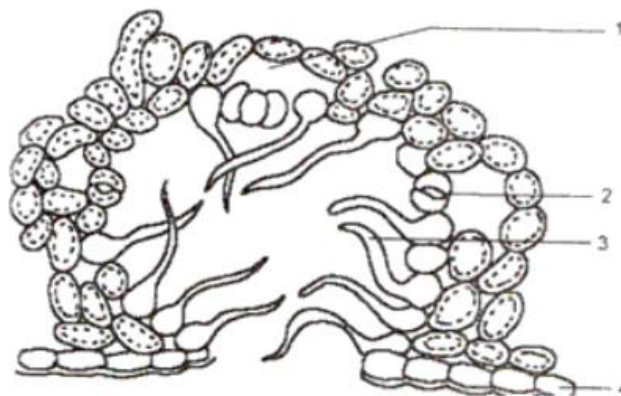
**(a)** The figure represents a transverse section together with the nerves. Study the same and then answer the questions which follow:



- (i) Name the structure shown in the diagram.
- (ii) Label the parts 1–8 indicated by guidelines.
- (iii) What do the arrows indicate? What is the term for the pathway indicated here?
- (iv) What type of nerve is shown in the diagram?
- (v) Define stimulus and response.

[5]

**(b)** The given figure shows a section through a part of a leaf of *Nerium*.



- (i) Label the parts numbered 1–4.
- (ii) What is the figure depicting?
- (iii) Mention any two disadvantages of transpiration.
- (iv) State any two differences between transpiration and evaporation.

[5]

**Question 6**

- (a) Complete the following by filling in the blanks numbered 1 to 10 with the appropriate word/term:

Photosynthesis involves a light reaction and a dark reaction. During the light reaction, chlorophyll present in the (1) \_\_\_\_\_ gets activated by absorbing light energy. This energy splits (2) \_\_\_\_\_ molecules to (3) \_\_\_\_\_ and oxygen and releases two electrons. This process is called (4) \_\_\_\_\_. The (5) \_\_\_\_\_ ions are picked up by NADP to form (6) \_\_\_\_\_. The ADP is converted to (7) \_\_\_\_\_. This process is called (8) \_\_\_\_\_. During the dark phase, the compound produced at the end of the light reaction reacts with carbon dioxide to form (9) \_\_\_\_\_. This product is converted to starch. The process is called (10)\_\_\_\_\_.

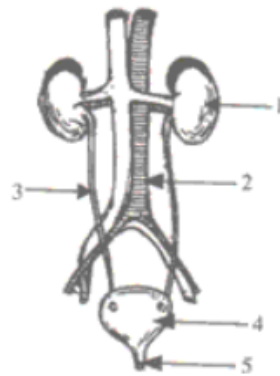
[5]

- (b) With the help of a Punnett square show a monohybrid cross up to the F<sub>2</sub> generation between plants having purple and white flowers. Also, write the genotypic and phenotypic ratio of the F<sub>2</sub> generation.

[5]

**Question 7**

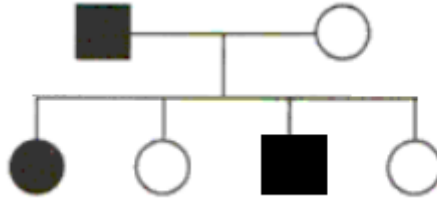
- (a) Given alongside is the figure of a body system. Study the diagram and answer the following questions:



- (i) Name all the organ systems which are shown in the diagram.
- (ii) Name the parts labelled 1–5.
- (iii) Name the structural and functional units of the part labelled 1.
- (iv) Mention the two main organic constituents of the fluid which flows down the part labelled '3'.
- (v) Name the two major steps involved in the formation of the fluid which passes down the part labelled '3'.

[5]

(b) A family consists of two parents and their four children, and the pedigree chart below shows the inheritance of the trait polydactyly.



- (i) Who is a polydactyl parent?
- (ii) How many daughters and sons have been born in the family?
- (iii) What does child 1 and 3 indicate about this trait?
- (iv) Complete the depiction of all probabilities of the trait in child 2 and 4.
- (v) What is polydactyly?

[5]