

**ICSE Board**  
**Class X Biology**

**Time: 2 hrs**

**Total Marks: 80**

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**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) The branch of the renal artery which enters the Bowman's capsule.
- (ii) A rise in blood pressure above 140/90.
- (iii) The lower part of the brain which contains the reflex centre.
- (iv) The hormone responsible for the ossification of bones.
- (v) Father of Evolution. [5]

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

- (i) Cones are photoreceptor cells which are sensitive to dim light.
- (ii) The beta cells of the pancreas secrete insulin.
- (iii) Tubectomy is the surgical method of sterilisation in males.
- (iv) Guttation is the loss of water in the form of water droplets from hydathodes.
- (v) Nephrons are the basic units of the brain. [5]

**(c)** Give technical terms for the following:

- (i) The muscle node in the heart responsible for initiating the heart beat.
- (ii) The process by which complex substances are broken down into simple substances in the body.
- (iii) The complex of DNA and 8 histones.
- (iv) The absorption of water by dead cells due to surface attraction.
- (v) A disorder caused by the hyposecretion of vasopressin. [5]

**(d)** Given below are five sets of terms. In each case, arrange and rewrite each set so that the terms are in a logical sequence.

- (i) Tympanum, stapes, malleus, incus, oval window
- (ii) Graafian follicle, uterus, funnel of oviduct, fallopian tube, ovum
- (iii) Soil water, root hair, xylem, cortex, endodermis
- (iv) Association neuron, effector, motor neuron, receptor, sensory neuron
- (v) Lens, pupil, conjunctiva, yellow spot, cornea [5]

**(e)** Complete the following by selecting the correct word from those given in the brackets.

- (i) \_\_\_\_\_ is the front chamber between the lens and the cornea (vitreous chamber, aqueous chamber, macula).
- (ii) Hypersecretion of growth hormone in adults causes \_\_\_\_\_ (cretinism, gigantism, acromegaly).
- (iii) \_\_\_\_\_ is a mechanical device used to control childbirth which is fitted on the cervix (condom, copper-T, diaphragm).
- (iv) The centromere division occurs during \_\_\_\_\_ (prophase, metaphase, anaphase).
- (v) The median or cochlear canal is filled with \_\_\_\_\_ (endolymph, perilymph, exolymph). [5]

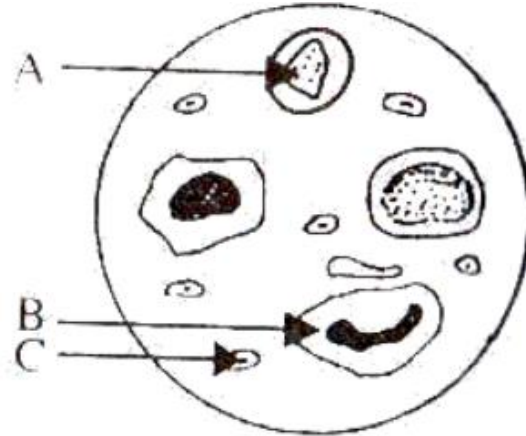
**(f)** Identify the type of tropic movement in each of the following.

- (i) Bending of shoot towards sunlight
- (ii) Growth of roots in downward direction
- (iii) Coiling of tendrils around a bamboo
- (iv) Growth of pollen tube towards ovule
- (v) Movement of stem away from moisture. [5]

**(g)** State the difference between the following pairs:

- (i) Rods and cones
- (ii) Enzymes and hormones
- (iii) Menarche and menopause
- (iv) Mitosis and meiosis
- (v) Light reaction and dark reaction [5]

(h) The diagram given below represents a blood smear.



- (i) Identify A, B and C by giving their scientific names.
- (ii) State one important function of each.
- (iii) State two characteristics of B which enable it to carry out its function.

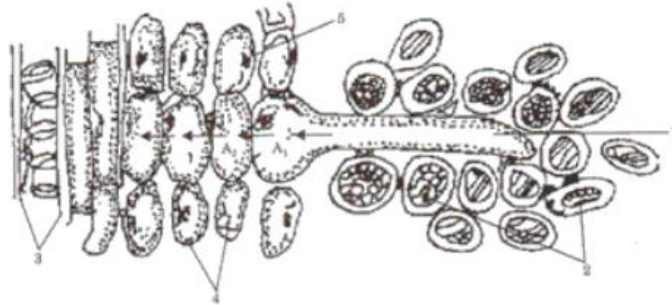
[5]

**Section II [40 Marks]**

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

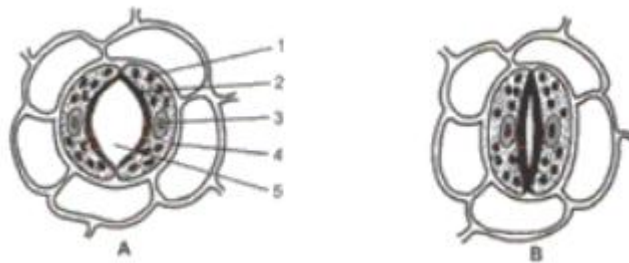
**Question 2**

**(a)** The figure given below is the diagrammatic representation of the cross-section of the root in the root hair zone. Study the same and then answer the questions which follow:



- (i) Name the parts labelled 1–5.
- (ii) Is the root hair cell unicellular or multicellular?
- (iii) Draw a labelled diagram of a root hair cell as it would appear if some fertiliser was added to the soil close to it.
- (iv) What pressure is responsible for the movement of water in the direction indicated by the arrows?
- (v) How is this pressure set up? [5]

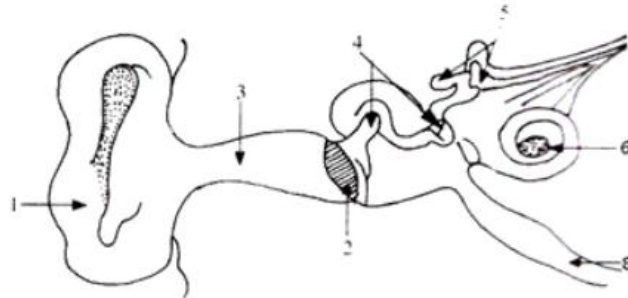
**(b)** The following are diagrams of a certain structure in plants in two conditions.



- (i) Identify the structure shown.
- (ii) Name the parts labelled 1–5.
- (iii) What is the most apparent difference between A and B in the structure shown?
- (iv) Describe the mechanism which brings about the change in the structure depicted in A and B. [5]

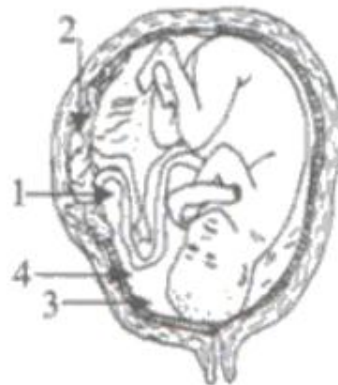
### Question 3

(a) The figure shows the principal parts of the human ear. Study the diagram and answer the following questions:



- (i) Label the parts 1–8.
- (ii) State the role of parts 6 and 7.
- (iii) Why is it harmful to use a sharp object to remove wax from our ears? [5]

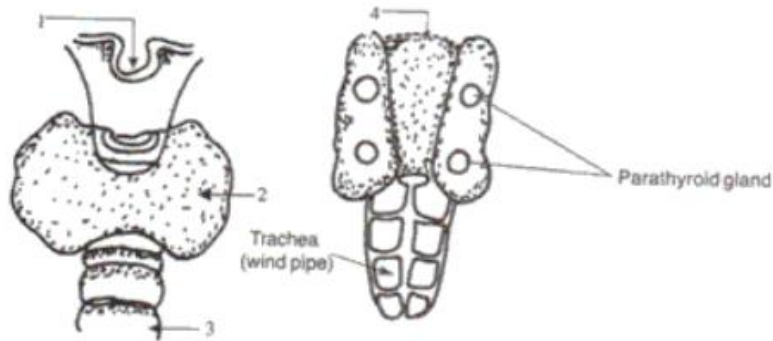
(b) The figure shows a human foetus in the uterus.



- (i) Label the parts 1–4.
- (ii) State the functions of parts 2 and 3.
- (iii) Briefly explain the respiration of the embryo. [5]

#### Question 4

(a) Given alongside are diagrammatic sketches of some endocrine glands. Observe the figures and answer the following questions:



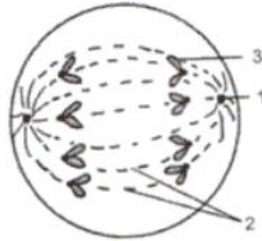
- (i) Label the parts 1-4.
- (ii) Name the hormones secreted by 2.
- (iii) Which chemicals in our body are greatly affected by hormones?
- (iv) What is the chemical nature of hormones?
- (v) Name the elements related with the functioning of hormones secreted by structure '2'. [5]

#### (b)

- (i) Mention two reasons for the increase in the population of India.
- (ii) Write the full forms of NADP and BCG.
- (iii) List two major changes in the evolution from an ape-like form to human form.
- (iv) State the principles forming the basis of Darwin's theory of natural selection. [5]

### Question 5

- (a) The diagram given below represents a stage during 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 and 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) Give reasons for the following:
- (i) There is an increasing dependence today on natural sources of energy such as sunlight and wind.
  - (ii) Injury to the medulla oblongata results in death.
  - (iii) Gametes have a haploid number of chromosomes.
  - (iv) Green leaves are thin and broad.
  - (v) When the temperature is high, transpiration is also high. [5]

## Question 6

(a)

(i) What causes an 'algal bloom'? Suggest some control measures.

(ii) What are the various measures used to control soil pollution?

(iii) Write the full form of

i. CFC

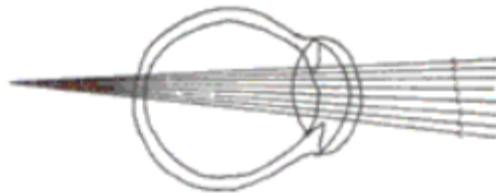
ii. DDT

iii. BOD

iv. PAN

[5]

(b) The diagram represents a defect in the vision of the human eye.



(i) Name the defect.

(ii) How does it affect a human being?

(iii) Mention two causes for this defect.

(iv) How can this defect be rectified?

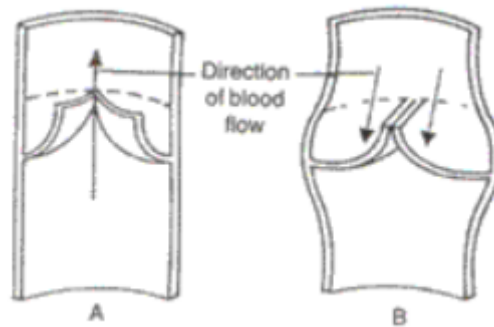
(v) What is the nature of the image which falls on the retina of a normal eye?

[5]



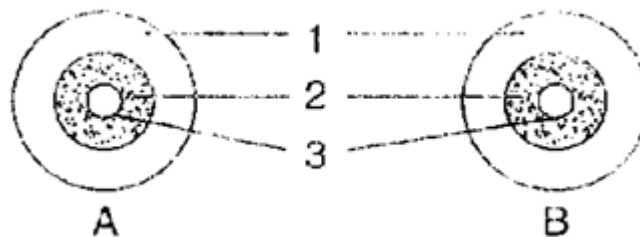
### Question 7

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



- (i) Identify 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 vessels? If so, name them.
- (v) Towards which side of the figure (top or bottom) is the heart located? [5]

(b) The diagram below shows a mammalian eye as seen from the front.



- (i) Label the parts 1, 2 and 3.
- (ii) What has caused the change from A to B?
- (iii) Name the muscles which bring about the change.
- (iv) What is the function of the part labelled 1?
- (v) Distinguish between presbyopia and astigmatism. [5]