ICSE Board
Class X Biology
Board Paper 2011
(One hour and a half)

General Instructions: **Total Marks: 80**

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 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) Name the following: [5]

(i) The mineral element essential for the clotting of blood.
(ii) The cells of the testes which produce the male hormones.
(iii) The nutritive layer of the eye which also prevents the reflection of light.
(iv) The structural and functional unit of the kidney.
(v) The part of the chloroplast where the light reaction of photosynthesis takes place.

(b) State the main functions of the following: [5]

(i) Yellow spot
(ii) Coronary artery
(iii) Medulla oblongata
(iv) Thrombocytes
(v) Vitreous humour

(c) Copy and complete the following by filling in the blanks 1 to 5 with appropriate words/terms/phrases: [5]

To test the leaf for starch, it is boiled in water to ……. (1). It is next boiled in methylated spirit to ……. (2). The leaf is placed in warm water to soften it. It is then placed in a dish and ……. (3) solution is added. The region which contains starch turns …….. (4), and the region which does not contain starch turns ……. (5).

(d) Give the exact location of the following: [5]

(i) Amnion
(ii) Pituitary gland
(iii) Mitral valve
(iv) Organ of Corti
(v) Hydathodes

(e) State whether the following statements are true or false. If false, rewrite the correct form of the statement by changing the first or last word only: [5]

(i) Penicillin obtained from *Penicillium notatum* is an antibody.
(ii) Gestation is the process of fixing of the zygote to the uterine wall.
(iii) Centromere is an organelle of the cell to initiate cell division.
(iv) Urethra carries urine from the kidney to the urinary bladder.
(v) Lysosome is a part of the cell in which chromosomes are present.

(f) Rewrite and complete the following sentences by inserting the correct word in the space indicated: [5]

(i) ……. is the phenomenon of contraction of the cytoplasm from the cell wall.
(ii) The blood vessel which begins and ends in capillaries is the ……..
(iii) Wooden doors swell up in the rainy season due to ……..
(iv) Phenotype is the observable characteristic which is …….. controlled.
(v) ……... vaccine is given to build up immunity against polio.

(g) Study the following diagram carefully and answer the questions which follow: [5]

(i) Name the cell 1.
(ii) What phenomenon is occurring in A?
(iii) Mention two structural differences between 1 and 2.
(iv) Name the process occurring in B and C and state the importance of this process in the human body.

(h) Match the items in Column I with that which is most appropriate in Column II. [5]

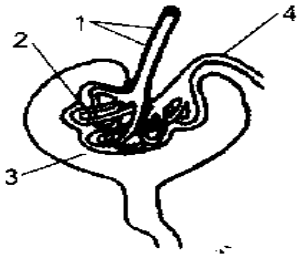
Column I	**Column II**
(1) Pacemaker	(a) Associated with static body balance
(2) Stroma	(b) Chordae tendinae
(3) Afferent nerve	(c) Site of light reaction
(4) Prolactin	(d) Motor neuron
(5) Sacculus	(e) SA node
	(f) Stimulates production of milk by the mammary gland
	(g) Site of dark reaction
	(h) Transmits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

SECTION II [40Marks]

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

Question 2 [10]

(a) Study the diagram given below and answer the following questions:



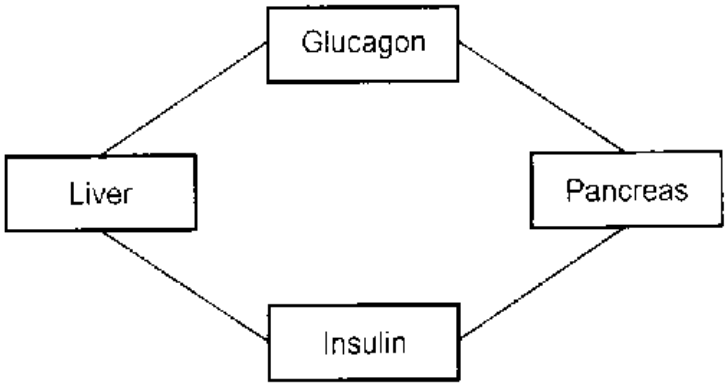
(i) Name the region in the kidney where this structure is present.
(ii) Name the parts labelled 1, 2, 3 and 4.
(iii) Name the stages involved in the formation of urine.
(iv) What is the technical term given to the process occurring in 2 and 3? Briefly describe the process.

(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 nucleus and mitochondria.
(v) Photosynthesis is considered as a process supporting all life on Earth.

Question 3 [10]

(a) Study the diagram given below and answer the following questions:

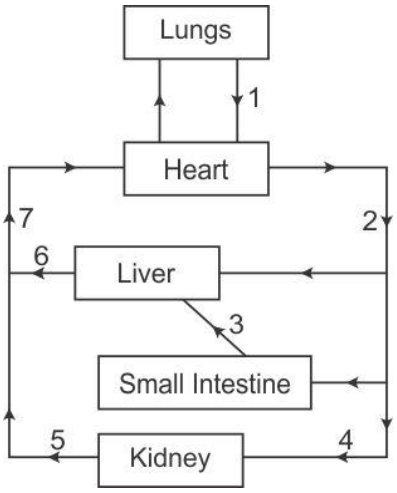


(i) Name the pancreatic cells which produce (1) glucagon and (2) insulin.
(ii) State the main function of (1) glucagon and (2) insulin.
(iii) Why is the pancreas referred to as an exo-endocrine gland?
(iv) Why is insulin not given orally but is injected into the body?
(v) What is the technical term for the cells of the pancreas which produce endocrine hormones?
(vi) Where in the body is the pancreas located?

(b) With reference to the functioning of the eye, answer the following questions:
(i) What is power of accommodation of the eye?
(ii) What is the shape of the lens during
(1) near vision and (2) distant vision?
(iii) Name the two structures in the eye responsible for bringing about the change in the shape of the lens.
(iv) Name the cells of the retina and their respective pigments which get activated (1) in dark and (2) in light.

Question 4 [10]

(a) The diagram below shows the human circulatory system. Answer the following questions:

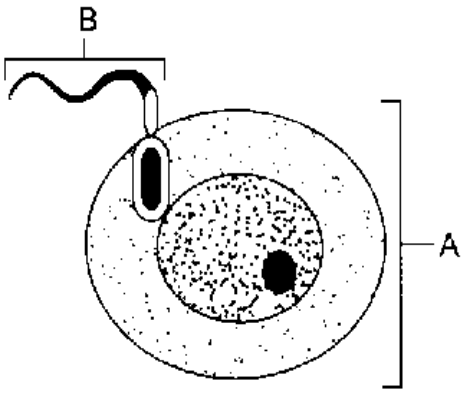


(i) Name the blood vessels 1, 3, 6 and 7.
(ii) Name the blood vessel supplying blood to the walls of the heart with oxygen.
(iii) Draw a neat labeled diagram of blood vessel '2' as seen in a cross-section.
(iv) Mention one structural difference between blood vessels numbered 4 and 5.

(b) With reference to the human ear, answer the following questions:
(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.

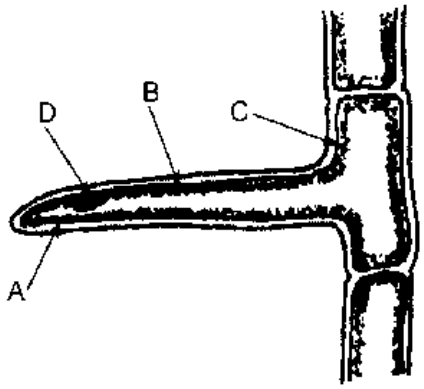
Question 5 [10]

(a) The diagram below shows two reproductive cells A and B. Answer the following questions based on the diagram:



(i) Name the reproductive cells A and B.
(ii) Where are the above cells produced in the reproductive system?
(iii) Where do these cells unite in the female reproductive system?
(iv) Name the main hormones secreted by (1) ovary (2) testes.
(v) Name an accessory gland found in the male reproductive system and state the function of its secretion.

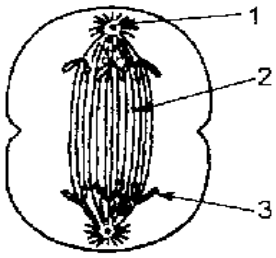
(b) The diagram shows a layer of epidermal cells showing a fully grown root hair. Answer the questions by seeing the diagram:



(i) Name the parts labelled A, B, C and D.
(ii) The root hair cell is in a turgid state. Name and explain the process which caused this state.
(iii) Mention one distinct difference between the parts labelled A and B.
(iv) Draw a diagram of the above root hair cell as it would appear when a concentrated solution of fertilisers is added near it.

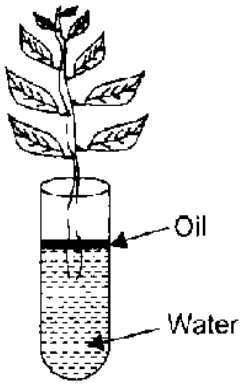
Question 6 [10]

(a) The diagram shows a stage during cell division. Study the diagram and answer the following questions:



(i) Name the parts labelled 1, 2 and 3.
(ii) Identify the stage shown here by giving one reason.
(iii) Where in the body does this type of cell division occur?
(iv) Name the stage prior to this stage and draw a diagram to represent the same.

(b) Study the diagram given below and answer the following questions:



(i) Name the process being studied in the above experiment.
(ii) Explain the process mentioned in (i) above.
(iii) Why is oil placed over water?
(iv) What do we observe with regard to the level of water when this setup is placed in (1) bright sunlight, (2) humid conditions and (3) on a windy day?
(v) Mention any three adaptations in plants to overcome the process mentioned in (ii) above.

Question 7 [10]

(a)

(i) Mention the effects of two individuals in a street fight on the following organs by the autonomous nervous system (one has been done for you).

Organ	**Sympathetic system**	**Parasympathetic system**
Lungs	Dilates bronchi and bronchioles	Constricts bronchi and bronchioles
(1) Heart		
(2) Pupil of the eye		
(3) Salivary gland		

(ii) List four major activities of the Red Cross.

(b) Write the difference between the following pairs by following the indications in the brackets:

(i) Antiseptic and disinfectant (an example for each)
(ii) Erythrocytes and leucocytes (function)
(iii) Guttation and bleeding in plants (cause)
(iv) NADP and AIDS (expand the abbreviation)
(v) Monohybrid and dihybrid cross (phenotypic ratio)