ICSE Board
Class X Biology
Board Paper 2015
(Two hours)

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 the paper is the time allowed 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:

(i) The process of uptake of mineral ions against the concentration gradient using energy from cell.
(ii) The form in which glucose in stored in liver.
(iii) The vein that carries oxygenated blood.
(iv) The cross between two parents having one pair of contrasting characters.
(v) The structure formed by the villi of the embryo and the uterus of the mother.

[5]

(b) The statements given below are false. Rewrite the correct form of the statement by changing the word which is underlined:

(i) Alpha cells of pancreas secrete <u>Insulin</u>.
(ii) Formalin is an example of an <u>Antiseptic</u>.
(iii) <u>CNG</u> is mainly responsible for the formation of acid rain.
(iv) Sulphadiazine is an example of an <u>Antiseptic</u>.
(v) Cretinism is caused due to deficiency of <u>Adrenaline</u>. [5]

(c) Choose the correct answer from the four options given below:

(i) A single highly coiled tube where sperms are stored, gets concentrated and mature us known as:
A. Epididymis
B. Vas efferentia
C. Vas deferens
D. Seminiferous tubule

(ii) Chromosomes get aligned at the centre of the cell during:
   A. Metaphase
   B. Anaphase
   C. Prophase
   D. Telophase

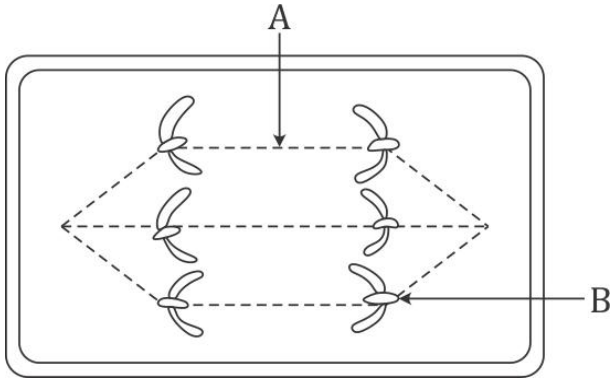
(iii) BCG vaccine is effective against
   A. Cholera
   B. Mumps
   C. Tuberculosis
   D. Measles

(iv) Which one of the following associated with the maintenance of the posture?
   A. Cerebrum
   B. Cerebellum
   C. Thalamus
   D. Pons

(v) An example of non-biodegradable waste is
   A. Vegetable peels
   B. Sewage
   C. Livestock waste
   D. DDT [5]

(d) Mention the exact location of the following structures:
(i) Thylakoids
(ii) Organ of Corti
(iii) Lenticels
(iv) Bicuspid value
(v) Loop of Henle [5]

(e) The diagram given below represents a certain stage of mitosis:



(i) Identify the stage of cell division.
(ii) Name the parts labelled A and B
(iii) What is the unique feature observed in this stage?
(iv) How many daughter cells are formed from this type of cell division? [5]

(f) Given below is an example of a certain structure and its special functional activity. On a similar pattern fill in the blanks with suitable functions:

Example: Chloroplast and photosynthesis

(i) Xylem and _____.

(ii) Ciliary body and _____.

(iii) Seminiferous Tubule and _____.

(iv) Thyroid gland and _____.

(v) Eustachian Tube and _____. [5]

(g) Rewrite and complete the following sentences by inserting the correct word in the space indicated:

(i) The phenomenon of loss of water through a cut stem or injured part of plant is called _____.

(ii) _____ is the scientific name of garden pea, which Mendel used for his experiments.

(iii) A fluid that occupies the larger cavity of the eye ball behind the lens is _____.

(iv) Oxygen combines with haemoglobin present in RBC and forms _____.

(v) _____ causes corrosion of the marble or brick surface. [5]

(h) Match the items in Column 'A' with those which are most appropriate in Column 'B'. Rewrite the matching pairs as shown in the example: [5]

Example: Fibrinogen – Clotting of blood.

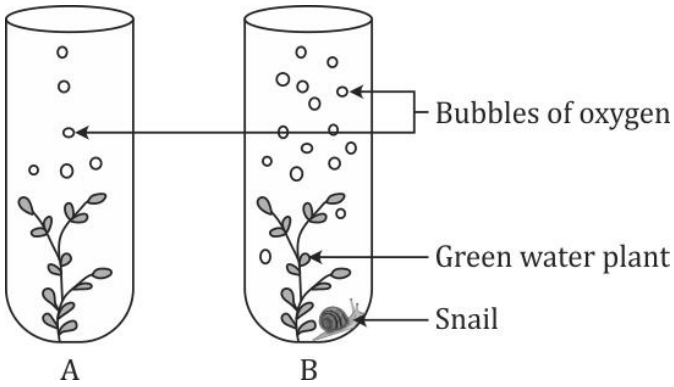
Column A	Column B
(1) Allele	(a) Control of automobile exhaust
(2) Leydig cells	(b) Tourniquet
(3) Utriculus	(c) Alternate forms of genes
(4) Snake bite	(d) Dynamic equilibrium
(5) Euro IV norms	(e) Testosterone
	(f) Sudden change in genes
	(g) Static equilibrium

SECTION II (40 Marks)

Attempt any four questions from this Section

Question 2

(a) The diagram below shows two test-tubes A and B. Test-tube A contains a green water plant. Test-tube B contains both a green water plant and a snail. Both test-tubes are kept in sunlight. Answer the questions that follow:

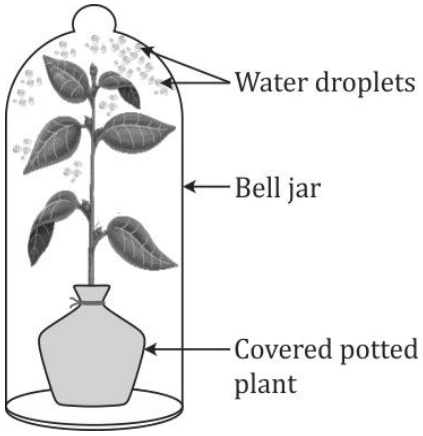


(i) Name the physiological process that releases the bubbles of oxygen.
(ii) Explain the physiological process as mentioned above in Q.2 (a)(i).
(iii) What is the purpose of keeping a snail in test-tube 'B'?
(iv) Why does test-tube 'B' have more bubbles of oxygen?
(v) Given an example of a water plant that can be used in the above process.
(vi) Write the overall chemical equation for the above process. [5]

(b) Give the biological/technical terms for the following:
(i) A mixture of smoke and fog.
(ii) Capacity of our body to resist disease.
(iii) Fixing of developing zygote on the uterine wall.
(iv) The permanent stoppage of menstruation at about the age of 45 years in a female.
(v) The hormone increasing reabsorption of water by kidney tubules.
(vi) A thin membrane covering the entire front part of the eye.
(vii) The lens of eye losing flexibility resulting in a kind of long-sightedness in middle aged people.
(viii) The number of persons living per square kilometre at any given time.
(ix) The sound produced when the atrio-ventricular valves close in the heart.
(x) The process by which white blood cells engulf bacteria. [5]

Question 3

(a) An apparatus as shown below was set up to investigate a physiological process in plants. The setup was kept in sunlight for two hours. Droplets of water were then seen inside the bell jar. Answer the questions that follow:

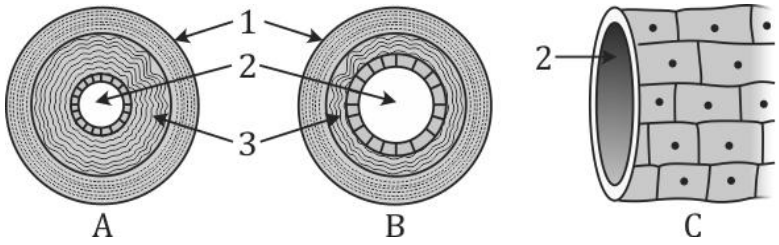


(i) Name the process being studied.
(ii) Explain the process named above in Q.3(a)(i).
(iii) Why was the pot covered with a plastic sheet?
(iv) Suggest a suitable control for this experiment.
(v) Mention two ways in which this process is beneficial to plants.
(vi) List three adaptations in plants to reduce the above mentioned process. [5]

(b) Briefly answer the following questions:
(i) State two reasons for the increase of population in India.
(ii) What is the significance of amniotic fluid?
(iii) What is the function of ear ossicles?
(iv) Mention any two activities of the WHO.
(v) State Mendel's law of Dominance. [5]

Question 4

(a) The diagrams given below are cross sections of blood vessels:

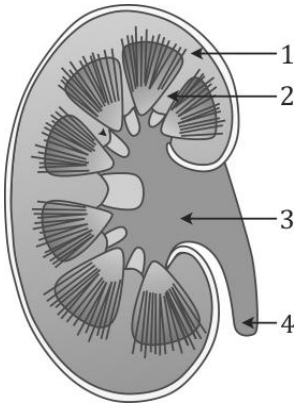


(i) Identify the blood vessels A, B and C.
(ii) Name the parts labelled 1 to 3.
(iii) Name the type of blood that flows through A.
(iv) Mention one structural difference between A and B.
(v) In which of the above vessels does exchange of gases actually take place? [5]

(b) Differentiate between the following pairs on the basis of what is mentioned within brackets:
(i) Diffusion and Osmosis (Definition)
(ii) RBC and WBC (Shape)
(iii) Tubectomy and Vasectomy (Part cut and tied)
(iv) Vasopressin and Insulin (Deficiency disorder)
(v) Rods and Cones of Retina (Type of pigment) [5]

Question 5

(a) The diagram given below shows a section of human kidney. Study the diagram carefully and answer the questions that follow:

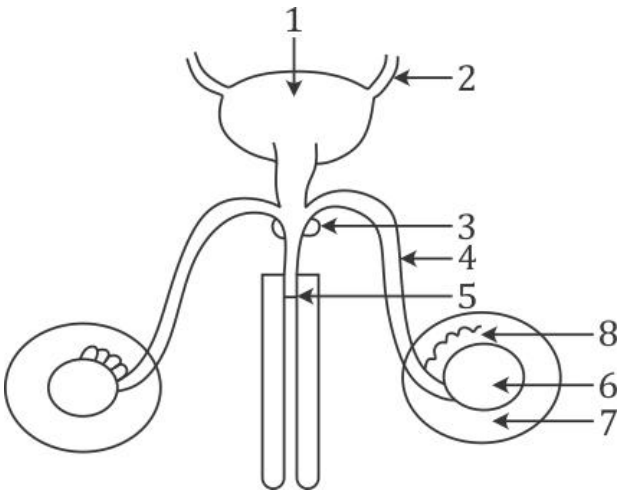


(i) Label the parts numbered 1 to 4.
(ii) Why does part '2' have a striped appearance?
(iii) What is the fluid that passes down part '4'? Name the main nitrogenous waste present in it.
(iv) Mention the structural and functional units of kidneys.
(v) Name the two major steps in the formation of the fluid mentioned in Q.5 (a) (iii). [5]

(b) Draw neat and labelled diagrams of the following:
(i) Malpighian Capsule
(ii) A Myelinated Neuron [5]

Question 6

(a) The diagram given below shows the male urinogenital system of a human being. Study the diagram and answer the questions that follow:

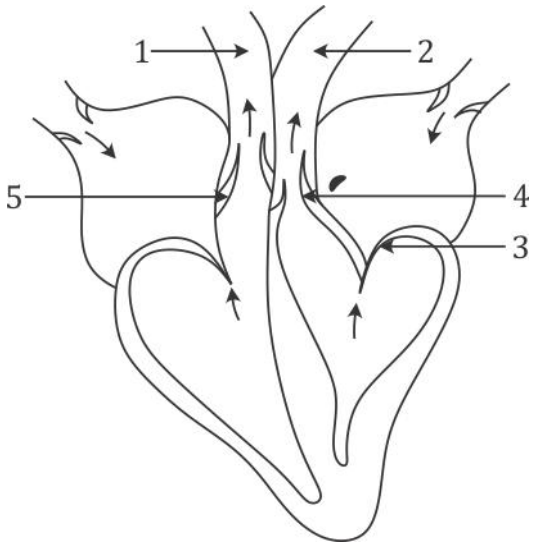


(i) Label the parts numbered 1 to 8.
(ii) Name the corresponding structure of part (4) in female reproductive system.
(iii) What is the role of part 7? [5]

(b) In a homozygous plant round seeds (R) are dominant over wrinkled seeds (r):
(i) Draw a Punnett square to show the gametes and offspring when both the plants have heterozygous round seeds (Rr).
(ii) Mention the Phenotype and Genotype ratios of the offspring in F_2 generation.
(iii) Name the sec chromosomes in human males and females.
(iv) Briefly explain the term 'Mutation'.
(v) What is the number of chromosomes in the gametes of human beings? [5]

Question 7

(a) The diagram below represents the human heart in one phase of its function. Study the diagram carefully and answer the questions that follow:



(i) Name the phase.
(ii) Which part of the heart is contracting in this phase? Give a reason to support your answer.
(iii) Name the parts labelled 1 to 4.
(iv) What type of blood flows through '2'?
(v) State the function of the part numbered '5'.
(vi) Name the membrane that covers the heart. [5]

(b) Explain the following terms:
(i) Greenhouse effect
(ii) Turgor pressure
(iii) Selective reabsorption
(iv) Natality
(v) Pulse