Biology Sample Paper - 2

Board – ICSE	Class –10th	Topic – Full Portion Test	Max. Marks – 80	Time – 2.00 Hrs.

Section – I **[40 marks]**

Question 1

1. Name the following: [5]
   (i) A plant hormone responsible for the phototropic and geotropic response of plant.
   (ii) The blood vessel which supplies blood to the liver.
   (iii) The number of chromosomes present in a nerve cell of a human being.
   (iv) The layer of the eyeball that forms the transparent cornea.
   (v) The wax – like layer on the epidermis of leaves which reduces transpiration.
2. Choose the correct answer from the each of the four options given below: [5]
   (i) The numbers of spinal nerves in a human being are:
   (a) 31 pairs (b) 10 pairs
   (c) 21 pairs (d) 30 pairs
   (ii) Which one of the following is non – biodegradable?
   (a) DDT (b) Vegetable peel
   (c) Cardboard (d) Bark of trees
   (iii) Aqueous humour is present between:
   (a) Lens and retina (b) Iris and lens
   (c) Cornea and iris (d) Cornea and lens
   (iv) Which of the following is not a vestigial part in human being?
   (a) Coccyx (b) Third molar on each side in each jaw
   (c) Segmental muscles of abdomen (d) Finger nails
   (v) Which one of the Mowing is a Greenhouse gas?
   (a) Oxygen (b) Methane
   (c) Sulphur dioxide (d) Nitrogen
3. Complete the following paragraph by filling in the blanks (i) to (v) with appropriate words: [5]

   To test a leaf for starch, the leaf is boiled in water to (i) _____. It is then boiled in Methylated spirit to (ii) _____. The leaf is dipped in warm water to soften it. It is placed in a petri dish, and (iii) _____ solution is added. The region of the leaf which contains starch, turns (iv) _____ and the region which does not contain starch, turns (v) _____.

4. Match the items given Column I with the most appropriate ones in Column II and rewrite the correct matching pairs. [5]

Column I	Column II
(i) Cretinism	(a) Hypersecretion of adrenal cortex
(ii) Diabetes insipidus	(b) Hyposecretion of thyroxine
(iii) Exophthalmic goiter	(c) Hyposecretion of growth hormone
(iv) Adrenal virilism	(d) Hyposecretion of vasopressin
(v) Dwarfism	(e) Hyposecretion of adrenal cortex
	(f) Hypersecretion of growth hormone
	(g) Hypersecretion of thyroxine

5. Correct the following statements by changing the underlined words. [5]
   (i) Normal pale yellow colour of the urine is due to the presence of the pigment Melanin.
   (ii) The outermost layer of Meninges is Pia meter.
   (iii) The cell sap of root hair is Hypotonic.
   (iv) Xylem transports starch from the leaves to all parts of the plant b d
   (v) Nitrogen bonds are present between he commentary nitrogenous bases of DNA.
6. Choose between the two options to answer the question specified in the brackets for the following: [5]
   An example is illustrated below.
   Example: Corolla or Calyx (Which is the outer whorl?) Answer: Calyx
   (i) Blood in the renal artery or renal vein (Which one has more urea?)
   (ii) Perilymph or endolymph (Which one surrounds the organ of Corti?)
   (iii) Lenticels or stomata (Which one remains open always?)
   (iv) Sclerotic layer or choroid layer (Which one forms the Iris?)
   (v) Blood in the pulmonary artery or pulmonary vein (Which one contains less oxyhaemoglobin?)
7. Given below is a representation of a type of pollution. Study the picture and answer the questions: [5]
   (i) Name the type of pollution shown in the picture.
   (ii) Name one source of this pollution.
   (iii) How does this pollution affect human health?

(iv) Write one measure to reduce this pollution.

(v) State one gaseous compound that leads to the depletion of the ozone layer and creates 'Ozone holes'.

8. Choose the ODD one out from the following terms given and name the CATEGORY to which the others belong: [5]

Example: Nose, Tongue, Arm, Eye

Answer: Odd Term - Arm, Category - Sense organs

(i) Detergents, X-rays, Sewage, Oil spills

(ii) Lumen, Muscular tissue, Connective tissue, Pericardium

(iii) Dendrites, Medullary Sheath, Axon, Spinal cord

(iv) Centrosome, Cell wall, Cell membrane, Large vacuoles

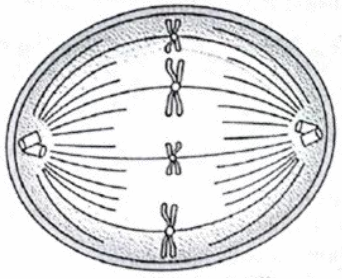
(v) Prostate gland, Cowper's gland, Seminal vesicle, Seminiferous tubules.

Section – II [40 marks]

Attempt any four questions from them.

Question 2

1. The diagram given below represents a stage during cell division. Study the same and answer the questions that follow: [5]



(i) Identify whether it is a plan cell or an animal cell. Give a reason in support of your answer.

(ii) Name the stage depicted in the diagram. What is the unique feature observed in his stage?

(iii) Name the type of cell division that occurs during:

(a) Replacement of old leaves by new ones.

(b) Formation of gametes.

(iv) What is the stage that comes before the stage shown in the diagram?

(v) Draw a neat, labelled diagram of the stage mentioned in (iv) above. Keeping the chromosomes number constant.

2. Mention the exact location of the following: [5]

(i) Epididymis

(ii) Lacrimal gland

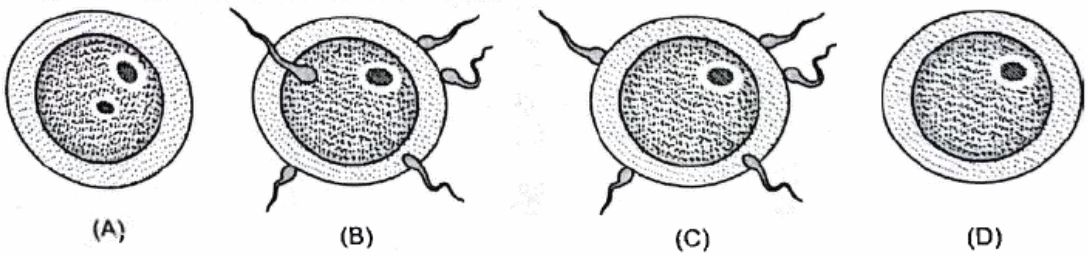
(iii) Malleus

(iv) Hydathodes

(v) Pulmonary semilunar valve

Question 3

1. Given below are diagrams showing the different stages in the process of fertilization o egg in the human female reproductive tract. Study the diagrams and answer the questions:



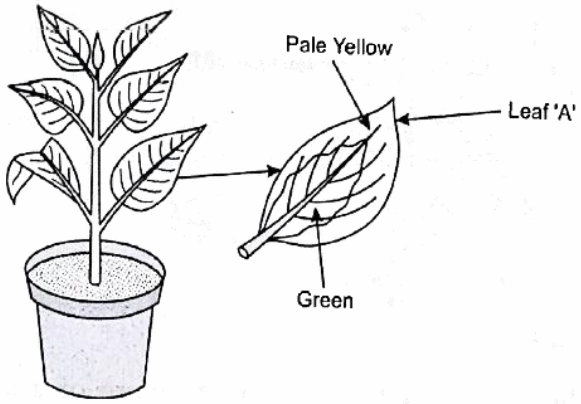
(i) Arrange the letters given below each diagram in a logical sequence to show the correct order in the process of fertilization. [1]

(ii) Where does fertilization normally take place? What is 'implantation' that follows fertilization? [1]

(iii) Mention the term 'Gestation'. How long does gestation last in humans? [2]

(iv) Draw a neat, labelled diagram of a mature human sperm. [1]

2. A plotted plant with variegated leaves was taken in order to prove a factor necessary for photosynthesis. The potted plant was kept in the dark for 24 hours and then placed in bright sunlight for a few hours. Observe the diagrams and answer the questions. [5]



(i) What aspect of photosynthesis is being tested in the above diagram?

(ii) Represent the process of Photosynthesis in the form of a balanced equation.

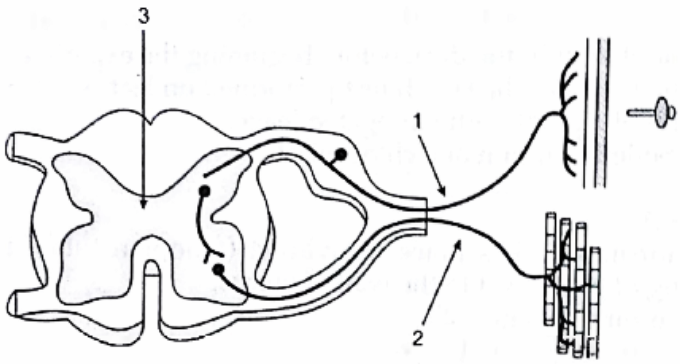
(iii) Why was tile plant kept in the dark before beginning the experiment?

(iv) What will be the result of the starch test performed on leaf 'A' shown in the diagram? Give an example of a plant with variegated leaves.

(v) Draw a neat labelled diagram of a chloroplast.

Question 4

1. The diagram given below shows the internal structure of a spinal cord depicting a phenomenon. Study the diagram and answer the questions: [5]



(i) Name the phenomenon that is depicted in the diagram. Define the phenomenon.

(ii) Give the technical term for the point of contact between the two nerve cells.

(iii) Name the parts numbered 1. 2 and

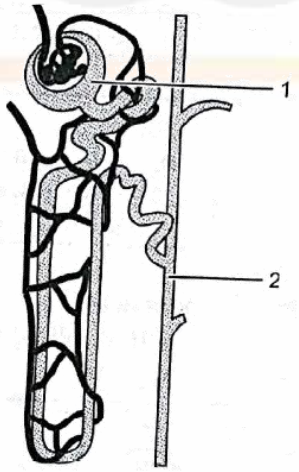
(iv) How does the arrangement of neurons in the spinal cord differ from that of the brain?

(v) Mention ways by which the spinal cord is protected in our body.

2. Give appropriate biological or technical terms for the following: [5]
   (i) Process of maintaining water and salt balance in the blood
   (ii) Hormones which regulate the secretion of other endocrine glands.
   (iii) Movements of molecules of a substance from their higher concentration to lower concentration when they are in direct contact.
   (iv) The condition in which a pair of chromosomes carry similar alleles of a particular character.
   (v) The complex consisting of a DNA strand and a core of histones.
   (vi) The onset of menstruation in a young girl.
   (vii) Squeezing out of white blood cells form the capillaries into the surroundings tissues.
   (viii) The fluid which surrounds the foetus.
   (ix) The relaxation phase of the heart.
   (x) The difference between the birth rate and the death rate.

Question 5

1. The diagram given below is that of a structure in a human kidney. Study the same and answer the questions that follow: [5]



   (i) Name the structure represented in the diagram.
   (ii) What is the liquid entering part '1' called? Name two substances present in this liquid that are reabsorbed in the tubule.
   (iii) What is the fluid that comes to part '2' called? Name the main nitrogenous waste in it.
   (iv) Mention the three main steps involved in the formation of the fluid mentioned in (iii) above.

(v) Name the substance which may be present in the fluid in part '2' if a person suffers from Diabetes mellitus.

2. Differentiate between the following pairs on the basis of what is indicated in the brackets. [5]

(i) Leaf and Liver [form in which glucose is stored]

(ii) ATP and IAA [expand the abbreviations]

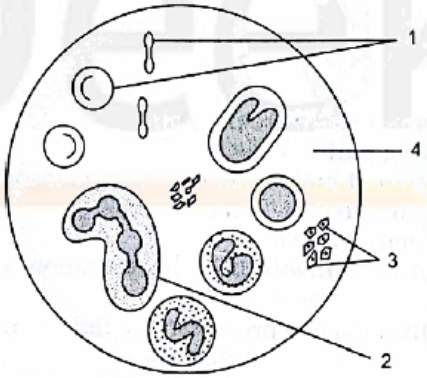
(iii) Testosterone and Oestrogen [organ which secretes]

(iv) Ureter and Urethra [function]

(v) Hypotonic solution and Hypertonic solution [condition of a plant cell when placed in them]

Question 6

1. Given below is a diagram of a human blood smear. Study the diagram and answer the questions that follow: [5]



(i) Name the components numbered '1' to '4'.

(ii) Mention two structures differences between the parts '1' and '2'.

(iii) Name the soluble protein found in part '4' which forms insoluble thread during clotting of blood.

(iv) What is the average lifespan of the component numbered '1'?

(v) Component numbered '1' do not have certain organelles but are very efficient in their function. Explain.

2. Give biological explanations for the following: [5]

(i) Education is very important for population control.

(ii) The placenta is an important structure for the development of a foetus.

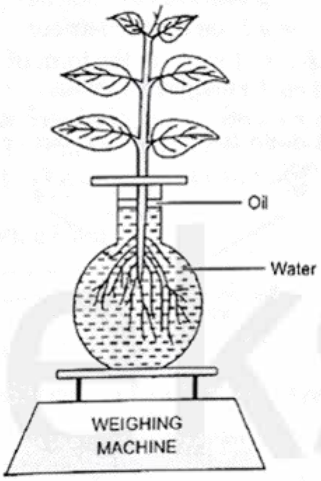
(iii) All the food chains begin with green plants.

(iv) Plants growing in fertilized soil are often found to wilt if the soil is not adequately watered.

(v) We should not put sharp objects into ears.

Question 7

1. The diagram below represents a process in plants. The setup was placed in bright sunlight. Answer the following questions: [5]



(i) Name the physiological process depicted in the diagram. Why was oil added to the water?

(ii) When placed in bright sunlight for four hours, what do you observe with regard to the initial and final weight of the plant? Give a suitable reason for your answer.

(iii) What happens to the level of water when this setup is placed in:

(a) Humid conditions?

(b) Windy conditions?

(iv) Mention any three adaptations found in plants to overcome the process mentioned in

(v) Explain the term 'Guttation'.

2. A pea plant which is homozygous for Green pods which are inflated [GGII] is crossed with a homozygous plant for yellow pods which are constricted [ggii]. Answer the following questions: [5]

(i) Give the phenotype and genotype of the F_1 generation. Which type of pollination has occurred to produce F_1 generation?

(ii) Write the phenotypic ratio of the F_2 generation.

(iii) Write the possible combinations of the gametes that can be obtained if two F_1 hybrid plants are crossed.

(iv) State Mendel's law of 'Segregation of Gametes'.

(v) What is the scientific name of the plant which Mendel used for his experiments on inheritance?