ICSE Board
Biology
Sample Paper – 2

Time: 2 hrs **Total Marks: 75**

General Instructions:

1. **All** questions are **compulsory**.
2. Questions 1 to 15 carry one mark each.
3. Questions in 2 A and B carry one mark each.
4. Questions in 3 A carry one mark each and B carries 5 marks.
5. Question 4 A and B carries 5 marks each.
6. Questions in 5 A and B carry one mark each.
7. Questions in 6A and B carry one mark each.
8. Question 7 A and B carry five marks each.

Question 1

Choose the correct answer out of the four available choices given below each question. [15]

1. Combining the stem and buds of two best quality plants is called_____.
   (a) Cutting
   (b) Grafting
   (c) Layering
   (d) Tissue culture

2. Observe the given food chain.
   Green plants → Grasshopper → Frog → Eagle
   In the given food chain, the herbivore is
   (a) Frog
   (b) Grasshopper
   (c) Eagle
   (d) Green plants

3. An embryo of a seed consists of _____.
   (a) Radicle, Plumule, Cotyledons
   (b) Radicle and Plumule
   (c) Radicle and Cotyledons
   (d) Radicle, Plumule and Embryonal axis

4. In which of the following emergencies, a tourniquet is tied?
   (a) Burns
   (b) Bleeding
   (c) Snake bite
   (d) Heart attack

5. *Leishmania donovani* is the causative agent for_____.
   (a) Sleeping sickness
   (b) Athlete's foot
   (c) Kala-azar
   (d) Measles

6. Ringworm is caused by
   (a) Bacteria
   (b) Fungi
   (c) Protozoa
   (d) Virus

7. Evergreen broad-leaved trees are characteristic of
   (a) Tropical rainforests
   (b) Temperate deciduous forests
   (c) Coniferous forests
   (d) Deserts

8. _____ is required for the synthesis of thyroxine.
   (a) Calcium
   (b) Iron
   (c) Iodine
   (d) Potassium

9. The eggs of fishes are kept in a _____ for developing into fry.
   (a) Nursery tank
   (b) Rearing tank
   (c) Small tank
   (d) Stocking pound

10. Universal donors belong to the blood group_____
   (a) AB
   (b) A
   (c) O
   (d) B

11. If the xylem vessels of a plant are plugged_____.
    (a) The leaves will turn yellow
    (b) No food will be made
    (c) The plant will wilt
    (d) The plant will continue to grow

12. Which of the following is a false fruit?
    (a) Tomato
    (b) Apple
    (c) Potato
    (d) Pea

13. Amoeba reproduces by_____
    (a) Regeneration
    (b) Binary fission
    (c) Multiple fission
    (d) Fragmentation

14. A state of mental or emotional strain is termed
    (a) Stress
    (b) Adolescence
    (c) Puberty
    (d) Disease

15. Cortisone hormone is secreted by the _____.
    (a) Medulla of the adrenal gland
    (b) Cortex of the adrenal gland
    (c) Anterior lobe of the pituitary gland
    (d) Posterior lobe of the pituitary gland

Question 2

(A) Give a scientific word for the following: [5]

1. The process of the union of two gametes.
2. Protruding part of the throat seen in boys.
3. Type of interaction in which one partner receives advantage while the other is at loss.
4. Domesticated animals reared for food or other uses.
5. The membranous covering of the heart.

(B) Fill in the blanks and rewrite the sentences: [5]

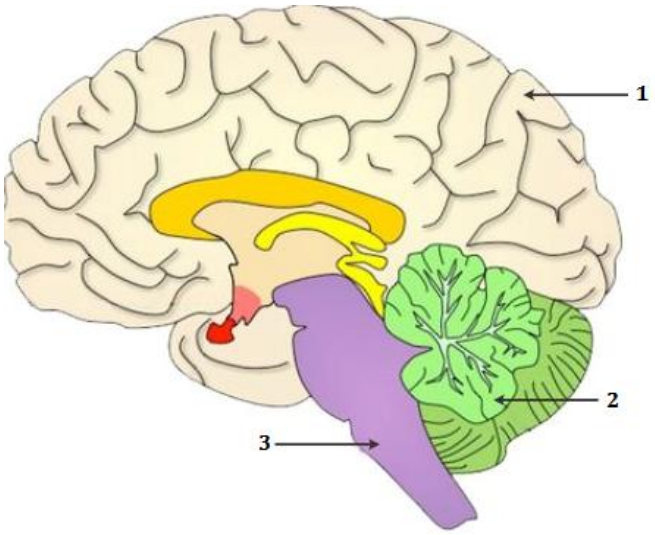
1. Ferns reproduce asexually by _____.
2. _____ vaccine is given for poliomyelitis.
3. _____ is the seat of intelligence and consciousness.
4. Phloem chiefly consists of _____ and companion cells.
5. In _____ both the interacting species are benefited.

Question 3

(A) Match the items in column I with the appropriate items in column II. [5]

Column A	Column B
1. Plasma	a) polio
2. Oil producing glands in the skin	b) Gujarat
3. Vaccination	c) liquid component of blood
4. Gir forest	d) Uttarakhand
5. Jim Corbett National Park	e) sebaceous glands

(B) Study the diagram below and answer the questions that follow: [5]



1. Label the numbered parts.
2. Write the functions of part 1 and part 3.

Question 4

(A) An apparatus shown alongside was set up in sunlight for about an hour. It was observed that drops of water appeared on the inside of the polythene bag. [5]

1. Name the process which is being demonstrated.
2. Why are the pot and the soil left uncovered by the polythene bag?
3. Why was the plant left in the sunlight?
4. Suppose the pot in this experiment, was placed inside a room instead of placing it in the sunlight. What difference would be noticed?

(B) Draw a neat diagram of the following and only label the parts mentioned against it. [5]

1. Structure of a seed.
2. Human sperm.

Question 5

(A) Give one point of difference between the following on the basis of what is given in the brackets: [5]

1. Asexual reproduction and sexual reproduction (gametes)
2. Hypogeal germination and epigeal germination (cotyledons)
3. Calyx and corolla (function)
4. Fry and fingerlings (definition)
5. Red blood cell and white blood cell (structure)

(B) Choose the odd one out and give the category for the remaining three. [5]

1. Root, Stem, Leaf, Seed, Fruit
2. Thyroid stimulating hormone, Growth hormone, Adrenocorticotropic hormone, Adrenaline, Anti-diuretic hormone
3. Nitrogen, Phosphorus, Potassium, Iron
4. Pomphret, Tilapia, Bombay duck, Snapper, Mackerel
5. Stigma, Style, Embryo sac, Anther, Egg

Question 6

(A) Complete the following and rewrite the table. [5]

Gland	Hormone	Major Function	Effects of hyposecretion	Effects of hypersecretion
1 _____	Insulin	**2** _____	Diabetes mellitus	**3** _____
Thyroid	**4** _____	General metabolism	**5**_____	**6**_____
7 _____	**8** _____	Growth of the child	**9**_____	**10**_____

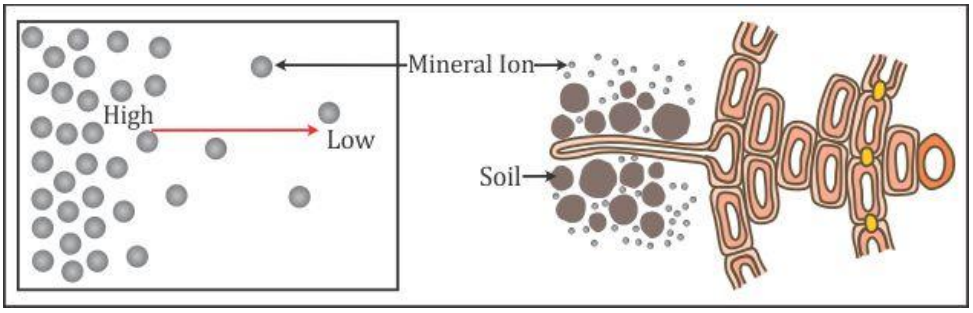
(B) Define the following terms: [5]

1. Blood pressure
2. Disease
3. Semi-permeable membrane
4. Sericulture
5. Food web

Question 7

(A)

1. Given below is a diagram of a method of transportation in plants. Identify and explain the method in brief. [3]



2. Which endocrine gland is called master gland? Why? [2]

(B)

1. State any three symptoms of protein deficiency kwashiorkor. [2]
2. Explain the process of blood clotting. [3]

Solution

Question 1

1. (b) Grafting.
   (Grafting is a method of artificial vegetative propagation of plants. In this method, a scion (stem with shoots) from a desired plant is tied on the stock (stem with roots) of a different plant. It helps in combining important and beneficial characters present in different plants in a single plant.)

2. (b) Grasshopper.
   (In the given food chain,
   Green plants → Producer
   Grasshopper → Herbivore
   Frog → Carnivore
   Eagle → Top carnivore)

3. (a) Radicle, Plumule, Cotyledons
   (A embryo of a seed consists of two fleshy cotyledons which is the food source for the germinating embryo, a plumule which develops into a shoot and a radical which develops into the roots.)

4. (c) Snake bite
   (In the case of a snake bite, some blood is immediately squeezed out from the wound and a tourniquet is tied tightly above that spot to prevent the spread of venom into the bloodstream.)

5. (c) Kala-azar
   (Kala-azar is a disease caused by the protozoan parasite *Leishmania donovani.* Its symptoms include fever, weight loss, fatigue and swelling of the liver and spleen.)

6. (b) Fungi
   (Ringworm is a disease caused by fungi. It is marked by ring-shaped patches on the skin.)

7. (a) Tropical rainforests
   (Evergreen broad-leaved trees are found in tropical rainforests due to the presence of heavy rainfall.)

8. (c) Iodine
   (Iodine is a constituent of the hormone thyroxine, and hence is needed for its synthesis.)

9. (a) Nursery tank
   (A nursery tank is separate tank used in hatcheries, which consists of an environment suitable for the hatching of the fish eggs. In a nursery tank, other fishes are absent and thus all the eggs can hatch without the young ones being eaten by large fishes.)

10. (c) O
    (Individuals with blood group O are universal donors, because their blood does not contain any of the antigens (neither antigen A nor antigen B) of the blood type. Thus, when blood of blood group O is transferred to any other individual the individuals body does not create an immune response.)

11. (c) The plant will wilt
    (Xylem is responsible for the transport of water throughout the plant, thus if the xylem vessels of a plant are plugged, the plant will wilt away.)

12. (b) Apple
    (In false fruits, the base of the flower becomes the main fleshy part of the fruit while the ovary remains a small central part containing seeds, e.g. apple and pear.)

13. (b) Binary fission
    (Amoeba reproduces by means of binary fission wherein the parent cell splits into two identical daughter cells.)

14. (a) Stress
    (A state of mental or emotional strain is termed stress or tension.)

15. (b) Cortex of the adrenal gland
    (The cortex of the adrenal gland is responsible for the secretion of the hormone cortisone.)
    Please note that the information provided in brackets is to help you in your learning. It does not have to be included in your answer.

Question 2

(A)

1. Fertilisation
2. Adams apple
3. Parasitism
4. Livestock
5. Pericardium

(B)

1. Ferns reproduce asexually by **spore formation**.
2. **Salk's** vaccine is given for poliomyelitis.
3. **Cerebrum** is the seat of intelligence and consciousness.
4. Phloem chiefly consists of **sieve tubes** and companion cells.
5. In **symbiosis** both the interacting species are benefited.

Question 3

(A)

Column A	Column B
1. Plasma	c) liquid component of blood
2. Oil producing glands in the skin	e) sebaceous glands
3. Vaccination	a) polio
4. Gir forest	b) Gujarat
5. Jim Corbett National Park	d) Uttarakhand

(B)

1.

1	Cerebrum
2	Cerebellum
3	Medulla oblongata

2.

Function of Part 1 (Cerebrum): It is the seat of intelligence, consciousness and will power. It controls all the voluntary activities.

Functions of Part 3 (Medulla oblongata): It controls involuntary actions such as beating of the heart, respiratory movements, peristalsis, etc. Injury to the medulla oblongata results in death.

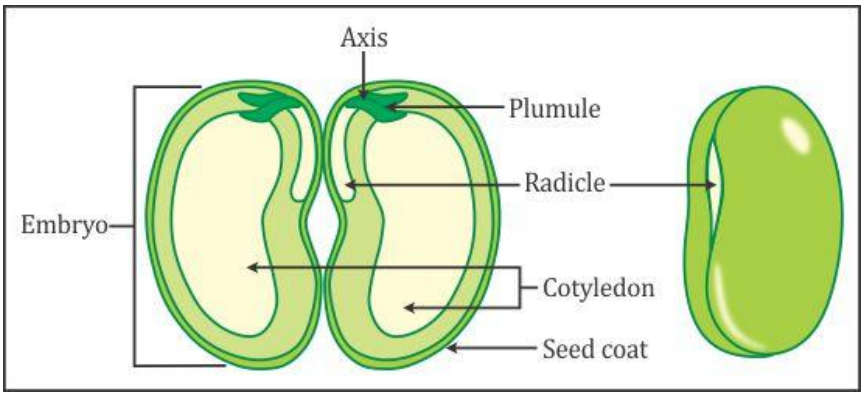
Question 4

(A)

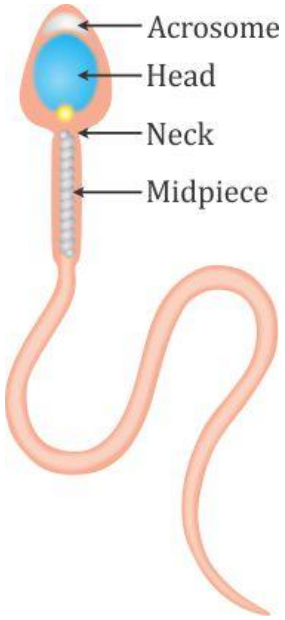
1. Transpiration is being demonstrated here.
2. The pot and its soil were left uncovered by the polythene bag because in the experiment we need to observe the loss of water occurring from plants. If the pot is covered, the water from the soil may also evaporate and we will not get accurate results.
3. In sunlight, the rate of transpiration is faster; therefore, the plant was placed in the sunlight.
4. If the pot was placed inside a room, the rate of transpiration would be less. As a result, less water droplets would condense on the inner side of the polythene bag.

(B)

1. Structure of a seed:



2. Human sperm:



Question 5

(A)

1. Asexual reproduction and sexual reproduction (gametes)

Asexual reproduction	Sexual reproduction
There is no formation of gamete in asexual reproduction.	Formation of gametes is an integral step of sexual reproduction.

2. Hypogeal germination and epigeal germination (cotyledons)

Hypogeal germination	Epigeal germination
The cotyledons remain underground in hypogeal germination.	The cotyledons emerge above the ground in epigeal germination.

3. Calyx and corolla (function)

Calyx	Corolla
The calyx protects the inner parts of the flower when in the bud condition.	The corolla helps the flower to attract insects for pollination.

4. Fry and fingerlings (definition)

Fry	Fingerlings
Fry are the tiny young fish that hatch out of the eggs.	Fingerlings are small fish of about the length of a finger.

5. Red blood cell and white blood cell (structure)

Red blood Cell (RBC)	White Blood Cell (WBC)
Red blood cells are circular, disc-shaped, biconcave and enucleated.	White blood cells are irregular in shape, colourless and larger than RBCs. They have a large and lobed nucleus.

(B)

1. Fruit. Category: Parts used by plants for asexual reproduction.
2. Adrenaline. Category: Hormones secreted by the pituitary gland.
3. Iron. Category: Macronutrients.
4. Tilapia. Category: Marine water fish.
5. Anther. Category: Parts of the female reproductive system of the flower.

Question 6

(A)

Gland	Hormone	Major Function	Effects of hyposecretion	Effects of hypersecretion
1 Pancreas	Insulin	**2 Regulates blood glucose level**	Diabetes mellitus	**3Hypoglycemia**
Thyroid	**4 Thyroxine**	General Metabolism	**5 Simple goitre**	**6Exophthalmic goitre**
7 Pituitary gland	**8 Growth hormone**	Growth of the Child	**9 Dwarfism**	**10 Gigantism**

(B)

1. Blood pressure: It is the pressure, which the blood flowing through the arteries exerts on their walls.
2. Disease: It is an abnormal condition that impairs the normal functioning of the body.
3. Semi-permeable membrane: It is a membrane, which allows only selective materials to pass through it.
4. Sericulture: It is artificial rearing of silkworms to obtain raw silk.
5. Food web: Several interconnected food chains together constitute a food web.

Question 7

(A)

1. Diffusion

   Diffusion is the free movement of molecules of a substance from a region of its higher concentration to a region of its lower concentration, until the concentration in both regions is equal.

   If the concentration of mineral outside the cell is higher than the cytoplasm of the root hair cell, then the mineral salts enter the cell by the process of diffusion.

2. Pituitary gland is called the master gland. It secretes several hormones, some of which regulate the activity of other endocrine glands. Hence, pituitary gland is called master gland.

(B)

1. Symptoms of protein deficiency disease kwashiorkor:
   i. The child has dull skin and hair.
   ii. The child shows oedema i.e. swelling on the skin due to water retention.

2. Blood clotting:
   Platelets are responsible for blood clotting.
   The platelets release an enzyme at the site of injury.
   This enzyme converts fibrinogen, present in the blood plasma, into fibrin.
   Fibrin forms a fine mesh into which the RBCs get trapped.
   Fibrin along with the trapped RBCs contracts and forms a clot and thus bleeding stops.