

**ICSE Board**  
**Biology**  
**Sample Paper – 1**

**Time: 2 hrs**

**Total Marks: 75**

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**General Instructions:**

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

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

1. Pulmonary vein carries
  - (a) Oxygenated blood
  - (b) Deoxygenated blood
  - (c) Glucose-rich blood
  - (d) CO<sub>2</sub> laden blood
  
2. Water from the soil enters the root xylem by the process of
  - (a) Diffusion
  - (b) Active transport
  - (c) Osmosis
  - (d) Both (a) and (b)
  
3. Breathing is controlled by which part of the brain / brainstem?
  - (a) Cerebrum
  - (b) Cerebellum
  - (c) Medulla Oblongata
  - (d) Pons
  
4. What type of tissue is blood?
  - (a) Muscular tissue
  - (b) Endothelial tissue
  - (c) Connective tissue
  - (d) Blood is not a tissue

5. Which of the following statement about an ecosystem is not true?
- (a) It comprises of only abiotic components.
  - (b) It is a self-contained area.
  - (c) It comprises of biotic as well as abiotic components.
  - (d) It helps to establish interdependence between living and non-living things.
6. Which hormone is responsible for the development of the female reproductive organs?
- (a) Norepinephrine
  - (b) Progesterone
  - (c) Oestrogen
  - (d) Progesterone and oestrogen
7. The leaves of which of the following plants can give rise to a new plant?
- (a) Mango
  - (b) Bryophyllum
  - (c) Bougainvillea
  - (d) Rose
8. Seeds are formed by the maturation of the
- (a) Ovary
  - (b) Ovum
  - (c) Ovule
  - (d) All of the above
9. Which endocrine gland(s) is/are located at the base of the brain?
- (a) Hypothalamus
  - (b) Pituitary gland
  - (c) Pineal gland
  - (d) Both (a) and (b)
10. In human females, puberty begins at the age of
- (a) 14 Years
  - (b) 10 Years
  - (c) 16 Years
  - (d) 11 Years
11. Marasmus is caused due to the deficiency of which of the following nutrients?
- (a) Carbohydrates
  - (b) Proteins
  - (c) Fats
  - (d) Both carbohydrates and proteins

12. Glucagon is secreted by
- (a) Pituitary gland
  - (b) Islets of Langerhans
  - (c) Exocrine part of pancreas
  - (d) Islets of Langerhans and endocrine part of pancreas
13. The method of organic farming relies on
- (a) Pesticides and new irrigation techniques
  - (b) Crop rotation and biological control
  - (c) Crop rotation and animal manure
  - (d) Chemical fertilisers and pesticides
14. Salk's vaccine is used to build immunity against
- (a) Tuberculosis
  - (b) Poliomyelitis
  - (c) Malaria
  - (d) Diphtheria
15. Blisters on feet and mouth, excessive salivation are symptoms of which of the following diseases?
- (a) Cowpox
  - (b) Foot and mouth disease
  - (c) Anthrax
  - (d) Rinderpest

## Question 2

- (A) Give a scientific word for the following: [5]
1. An instrument used to measure blood pressure.
  2. Ailment caused due to the enlargement of the thyroid gland.
  3. The age at which a human develops secondary sexual characters.
  4. A place where bees are reared and grown artificially to obtain wax, honey and other important products.
  5. Disease-causing germs.
- (B) Fill in the blanks and rewrite the sentences: [5]
1. Conversion of glycogen into glucose is facilitated by the \_\_\_\_\_ enzyme.
  2. \_\_\_\_\_ is the seat of intelligence and consciousness.
  3. Penicillin is obtained from \_\_\_\_\_.
  4. Over consumption of alcohol causes \_\_\_\_\_.
  5. \_\_\_\_\_ are absorbed through active transport by the roots.

### Question 3

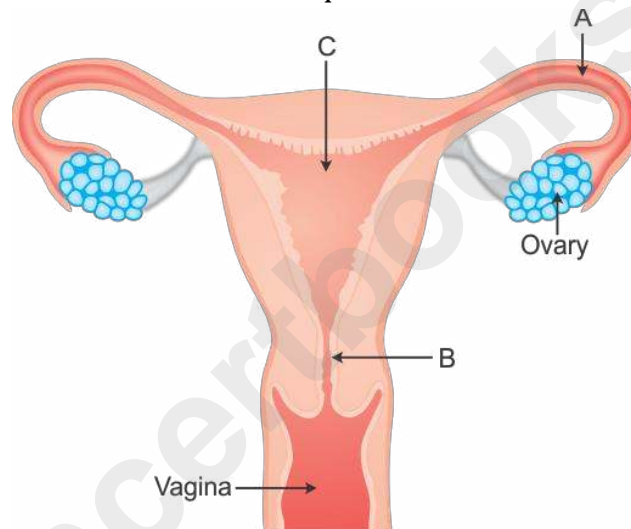
(A) Match the items in column I with the appropriate items in column II.

[5]

| Column A                | Column B          |
|-------------------------|-------------------|
| 1. Fish farming         | (a) Root pressure |
| 2. Rearing of silkworm  | (b) Vagina        |
| 3. Ascent of sap        | (c) Aquaculture   |
| 4. Rearing of honeybees | (d) Apiculture    |
| 5. Birth canal          | (e) Sericulture   |

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

[5]



1. Label the parts labelled A, B and C.
2. Write the functions of part A and part C.

### Question 4

(A) What is a food chain? Explain with the help of a neat and well-labeled diagram.

[5]

(B) Name the following

[5]

1. Three freshwater edible fish of India.
2. Residue of oil seeds used as cattle feed after the extraction of oil.
3. A cross-breed of hens.
4. A Kashmiri goat known for its expensive wool.
5. Most widely used silkworm for sericulture.

### Question 5

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

1. Arteries and Veins (Type of blood carried)
2. Mint plant and Potato (Reproduction)
3. Muscle and Glands (Response to nerve impulse)
4. Adrenal medulla and Adrenal cortex (Hormone secreted)
5. Hay fever and Leukemia (Type of disease)

(B) Below given are some diseases. Identify the cause of the disease and mention one food source of the causative component. [5]

1. Beri-beri
2. Rickets
3. Goitre
4. Pellagra
5. Anemia

### Question 6

(A) State one function of each of the following: [5]

1. Pericardium
2. Left Ventricle
3. White blood cells
4. Haemoglobin
5. Liver

(B) Define the following terms: [5]

1. Microbiology
2. Endangered Species
3. Deforestation
4. Nuclear energy
5. Wildlife

### Question 7

(A)

1. Describe the characteristics of insect and water pollinated flowers. [3]
2. Explain the significance of testes lying within the scrotum. [2]

(B)

1. Why one should avoid eating polished rice? [2]
2. If you spray a room freshener from a bottle in one end of a hall, will your friend at the other end of the hall be able to smell it? Explain your answer scientifically [3]

# Solution

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## Question 1

1. (a) Oxygenated blood  
(The pulmonary vein carries oxygenated blood from the lungs to the left atrium of the heart.)
2. (c) Osmosis  
(Water from the soil enters the root xylem by the process osmosis, due to the difference in the salt concentration between the surrounding soil and the root xylem.)
3. (c) Medulla Oblongata  
(The medulla oblongata is part of the brainstem and is a center for controlling respiration and circulation. One function of the medulla oblongata is to control breathing.)
4. (c) Connective tissue  
(Blood is a type of a connective tissue which flows in the blood vessels and helps in the transport of nutrients, hormones, oxygen and other components throughout the body.)
5. (a) It comprises of only abiotic components.  
(An ecosystem comprises of both biotic and abiotic components.)
6. (c) Oestrogen  
(Oestrogen is responsible for development of female reproductive organs.)
7. (b) Bryophyllum  
(Bryophyllum leaves bear buds, which when come in contact with soil can grow into a new plant.)
8. (c) Ovule  
(During fruit formation the ovule mature and forms the seeds while the ovary forms the fruit.)
9. (d) Both (A) and (B)  
(Both hypothalamus and pituitary gland are located at the base of the brain.)

10. (d) 11 Years  
(In human females, puberty begins at 11 years of age.)
11. (d) Both carbohydrates and proteins  
(Marasmus is caused due to the deficiency of both carbohydrates and proteins.)
12. (d) Islets of Langerhans and endocrine part of pancreas  
(Glucagon is secreted by Islets of Langerhans and endocrine part of pancreas. It stimulates the breakdown of glycogen in the liver to glucose.)
13. (c) Crop rotation and animal manure  
(Organic farming relies on crop rotation and animals manure. Therefore, organic crops are not grown without using chemical fertilizers and pesticides.)
14. (b) Poliomyelitis  
(Salk developed the polio vaccine to develop immunity against poliomyelitis.)
15. (b) Foot and mouth disease  
(Blisters on feet and mouth, excessive salivation are symptoms of which of foot and mouth disease.)

***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. Sphygmomanometer
2. Goitre
3. Puberty
4. Apiary
5. Pathogens

(B)

1. Conversion of glycogen into glucose is facilitated by which enzyme **glucagon**.
2. **Cerebrum** is the seat of intelligence and consciousness.
3. Penicillin is obtained from **Penicillium notatum**.
4. Over consumption of alcohol causes **Liver cirrhosis**.
5. **Minerals** are absorbed through active transport by the roots.

### Question 3

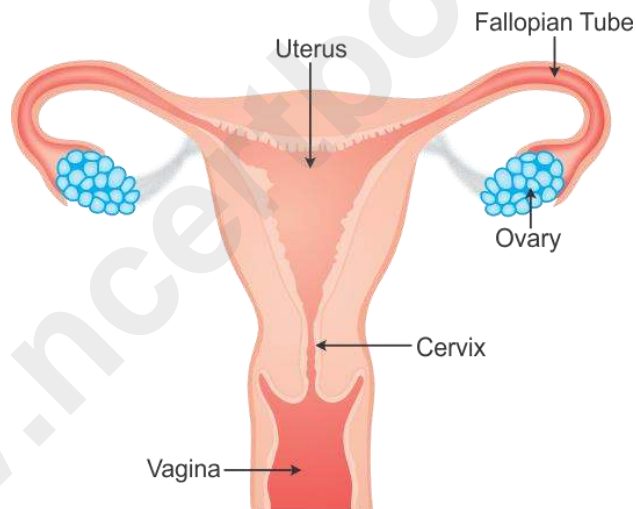
(A)

| Column A                | Column B          |
|-------------------------|-------------------|
| 1. Fish farming         | (c) Aquaculture   |
| 2. Rearing of silkworm  | (e) Sericulture   |
| 3. Ascent of sap        | (a) Root pressure |
| 4. Rearing of honeybees | (d) Apiculture    |
| 5. Birth canal          | (b) Vagina        |

(B)

1.

|   |                |
|---|----------------|
| A | Fallopian tube |
| B | Cervix         |
| C | Uterus         |



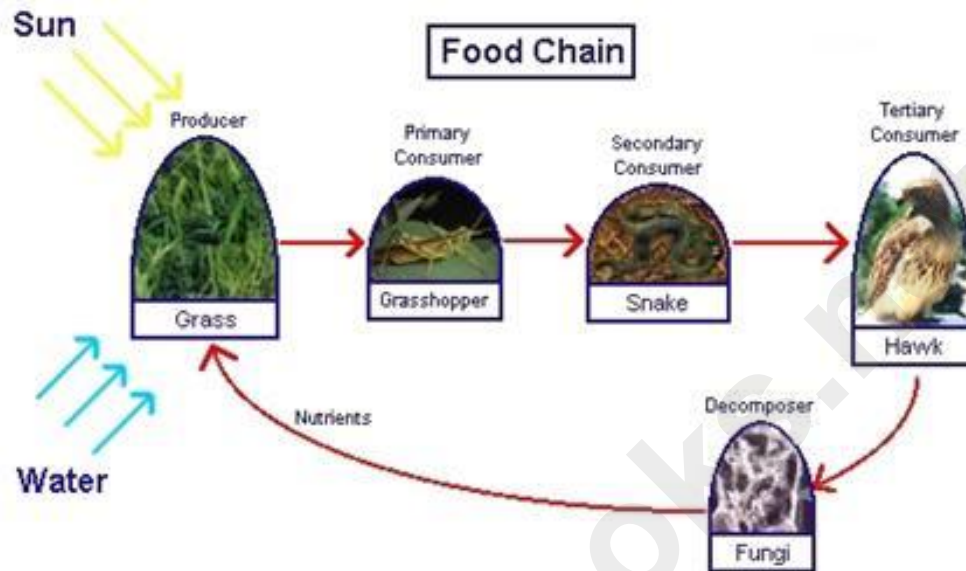
2.

Fallopian tube: it is the site where fertilization occurs.

Uterus: It is site of development of embryo.

#### Question 4

(A) The sequential process of eating and being eaten is called a food chain.



- All food chains begin with green plants or the producers. So, the plants or the producers constitute the first trophic level. E.g. Grass.
- The herbivores or primary consumers that feed on plants constitute the second trophic level. E.g. Grasshopper.
- The herbivores are next fed upon by the carnivores or secondary consumers. They constitute the third trophic level. E.g. Snake.
- Finally, the large carnivores, also called the top carnivores or tertiary consumers form the fourth trophic level. E.g. Hawk.
- The large carnivores die and form the feed of the decomposers. The decomposers feed on these dead animals and plants. E.g. Fungi.
- There is transfer of food from one organism to the other forming a chain.

(B)

1. Rohu, Catla, Tilapia
2. Oil cakes
3. IBL-80
4. Cashmere goat
5. *Bombyx mori*

### Question 5

(A)

1.

| <b>Arteries</b>   | <b>Veins</b>  |
|---|---|
| Carry oxygenated blood, except for the pulmonary artery which carries deoxygenated blood. | Carry deoxygenated blood, except for the pulmonary vein which carries oxygenated blood. |

2.

| <b>Mint plant</b>  | <b>Potato</b>  |
|--|--|
| In the mint plant, the stem grows horizontally and new roots arise from the nodes, which grow downwards in the soil and shoot upwards to give rise to a new plant. | Potato is a modified underground stem and bears buds called 'eyes', which when planted give rise to a new plant. |

3.

| <b>Muscle</b>  | <b>Glands</b>  |
|--|--|
| On receiving a nerve impulse a muscle either contracts or relaxes. | On receiving a nerve impulse a gland either starts or stops its secretion. |

4.

| <b>Adrenal medulla</b>   | <b>Adrenal cortex</b>   |
|--|---|
| The adrenal medulla secretes the emergency hormone adrenaline. | The adrenal cortex secretes many hormones, the most well known being cortisone. |

5.

| <b>Hay fever</b>            | <b>Leukemia</b>           |
|-----------------------------|---------------------------|
| It is a type of an allergy. | It is a type of a cancer. |

(B)

| <b>Disease</b> | <b>Cause</b>                         | <b>Food source</b>                 |
|----------------|--------------------------------------|------------------------------------|
| 1. Beri-beri   | Deficiency of vitamin B <sub>1</sub> | Nuts and legumes                   |
| 2. Rickets     | Deficiency of vitamin D              | Fish liver oil and egg yolk        |
| 3. Goitre      | Deficiency of iodine                 | Sea food and salt                  |
| 4. Pellagra    | Deficiency of vitamin B <sub>3</sub> | Liver and meat                     |
| 5. Anemia      | Deficiency of iron                   | Cereals and green leafy vegetables |

### Question 6

(A)

1. The **pericardium** encloses the heart. The pericardial fluid present in the pericardium provides lubrication during the contraction and relaxation of the heart.
2. The **left ventricle** pumps blood to all the parts of the body through the aorta.
3. **White blood cells** produce antibodies which kill disease-causing microorganisms.
4. **Haemoglobin** carries oxygen from the lungs to all the tissues.
5. The **liver** stores extra glucose in the form of glycogen.

(B)

1. **Microbiology:** The science which deals with the study of microbes is called microbiology.
2. **Vaccination:** The practice of artificially introducing germs or germ substance into the body for developing resistance to particular diseases is called vaccination.
3. **Reflex action:** Reflex action is the quick and immediate response to a stimulus without the involvement of the brain.
4. **Gestation:** The full term of the development of an embryo in the uterus is called gestation.
5. **Transportation:** The process in which substances absorbed or synthesized in one part of the body are moved to other parts of the body is called transportation.

### Question 7

(A)

1. Characteristics of insect pollinated flowers:
  - i. Large and coloured petals to attract insects.
  - ii. Nectar to attract insects.
  - iii. Pollen grains are sticky so that they can stick easily to the insect's body parts.Characteristics of water pollinated flowers:
  - i. Stamens and pollen grains are spongy and water-proof.
  - ii. They are also very light.
2. Sperms can survive at low temperatures. The scrotum maintains the suitable temperature for the testes which is 2 to 3 degrees lesser than the body temperature. Therefore, the scrotum containing the testes lies outside the body cavity.

(B)

1. Polished rice is a type of processed food. Processing of food removes various nutrients from it. Polishing removes vitamin B1 from rice. Eating vitamin B deficient polished rice may cause beri-beri. Therefore, one should avoid eating polished rice.
2. The friend will be able to smell the room freshener. The particles of the freshener travels from the end where the freshener is sprayed, i.e. the region of high concentration, to the end where the friend is standing, which is the region of low concentration, by the process of diffusion.