

**ICSE Board  
Class IX Biology  
Sample Paper – 14 Solution**

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**SECTION-I**

**Answer 1**

**(a)**

- (i) Monoecious plant
- (ii) Microtubule
- (iii) ATP
- (iv) Hybridisation
- (v) Roughage

**(b)**

- (i) petals
- (ii) secondary treatment
- (iii) fruits
- (iv) Phloem fibres
- (v) cartilaginous

**(c)**

(i)

Plant cell	Animal cell
Reserve food material is starch.	Reserve food material is glycogen.

(ii)

Tuberculosis	Diphtheria
Caused by <i>Mycobacterium tuberculosis</i>	Caused by <i>Corynebacterium diphtheriae</i>

(iii)

Thoracic region	Caudal region
It has 12 thoracic vertebrae.	It has 4 caudal vertebrae.

(iv)

Vitamin B6	Vitamin B11
Required in protein and amino acid metabolism	Helps in synthesis of DNA and maturation of RBC

(v)

Respiration	Photosynthesis
End products are water, carbon dioxide and ATP	End products are oxygen, ATP and food material

(d)

- (i) **Ornithophily:** The phenomenon where flowers are pollinated by birds is called ornithophily.
- (ii) **Lymph:** The plasma that oozes out of the blood vessels.
- (iii) **Inflorescence:** The mode of arrangement of flowers on the shoot system.
- (iv) **Flexor muscle:** Muscles of the biceps is called flexor muscle.
- (v) **Nitrification:** The process of conversion of ammonia to nitrites and nitrates.

(e)

- (i) True.
- (ii) False.  
Correct Statement: Bending of long bones is a symptom in rickets.
- (iii) False.  
Correct Statement: Weber's glands are present at the posterior border of the tongue.
- (iv) True.
- (v) False.  
Correct Statement: Mulberry shows catkin inflorescence.

(f)

Flowers	Inflorescence
1. Centella	<i>Umbel</i>
2. Mustard	<i>Raceme</i>
3. Banana	<i>Spadix</i>
4. Iberis	<i>Corymb</i>
5. Mulberry	<i>Catkin</i>

(g)

- (i) Cucurbit
- (ii) Papaya
- (iii) Euglena
- (iv) Pectoral girdle

(v) *Bacillus licheniformis*

(h)

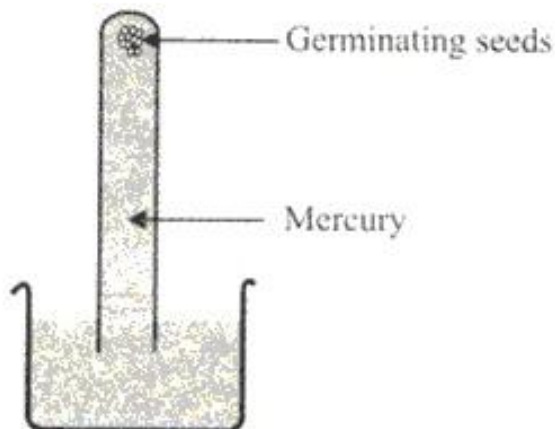
- (i) Nutrition is the process of food intake, digestion, absorption, assimilation and excretion.
- (ii) Large intestine
- (iii) The major function is to absorb water from the food and egestion of undigested waste from the body.
- (iv) 1 - Stomach  
2 - Small intestine  
3 - Large intestine  
4 - Gall bladder

## SECTION-II

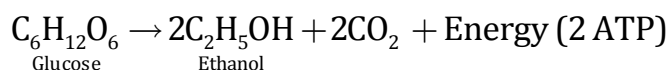
### Answer 2

(a)

- (i) The experimental set-up demonstrates anaerobic respiration.
- (ii) Corrected diagram:



(ii) Chemical equation for the process:



(b)

- (i) **Insulin:** Controls blood sugar level
- (ii) **Oil gland:** Prevents water loss as well as water absorption
- (iii) **Golgi bodies:** Help in the synthesis of polysaccharides and lipids
- (vi) **Muscular tissue:** Responsible for involuntary movements
- (iv) **Protein:** Assists in maintaining a balance of acidity and alkalinity in the cells

### Answer 3

(a)

- (i) BMR: Basal Metabolic Rate
- (ii) WBD: Water-borne Disease
- (iii) AZT: Azidothymidine
- (iv) IRV: Inspiratory Reserve Volume
- (v) ADP: Adenosine diphosphate

(b)

- (i) **Fermentation:** Breakdown of organic substances by organisms to release energy in the absence of oxygen
- (ii) **Denitrification:** Decomposition of nitrates and nitrites into ammonia and free nitrogen
- (iii) **Placentation:** Manner in which placenta and ovules are arranged inside the ovary wall
- (iv) **Cell inclusion:** Non-living substances found either in the cytoplasm or in the vacuoles
- (v) **Stele:** The central cylinder of the shoot or root surrounded by the cortex.

### Answer 4

(a)

- (i) In anaerobic respiration, only glycolysis takes place, during which glucose is converted to ethyl alcohol. As glycolysis takes place in the cytoplasm of the cell, anaerobic respiration is also completed in the cytoplasm.
- (ii) There are twelve pairs of ribs in the human body. The first seven (7) pairs of ribs are attached with the sternum. They are called true ribs. The next three (3) pairs are connected to the 7th pair of ribs. They are called false ribs. The last two (2) pairs are free (not attached to the sternum). They are called floating ribs.

(b)

- (i) The entire lining of the respiratory tract is formed of the ciliated epithelium and mucus, which trap dust particles and microorganisms and thereby prevent them from entering the body.
- (ii) Mucous lining in the respiratory tract makes the air moist.

**Answer 5****(a)**

- (i) Nucleus
- (ii) Importance of the nucleus:
  - 1. The nucleus is the controlling centre of the cell. It regulates all metabolic activities of the cell.
  - 2. It also regulates cell division.
  - 3. It is concerned with the transmission of heredity traits from parents to offspring.
- (iii) The nucleus is not present in all cells. Human RBCs do not contain a nucleus.

**(b)**

- (i) An example of carelessness while disposing of research waste was seen in Delhi, where radioactive Cobalt-60 was given to waste dealers, who dumped it in the well of a housing colony. Several people were badly affected and suffered a lot due to this kind of dumping.
- (ii) The non-useful component of garbage is separated out. It is then spread over the landfill and covered with a layer of soil. Once the landfill is completely full, it is usually converted to a park or playground.

**Answer 6****(a)**

- i. Butter consists of fat, which can be digested with the help of bile released from the liver.
- ii. Fats are present in the intestine in the form of large globules, which makes it difficult for the enzymes to act on them.
- iii. Bile salts present in the bile break fats into smaller globules to increase the action of enzymes. This process is known as emulsification.
- iv. Later, lipase acts on the emulsified fat and breaks it into fatty acids and glycerol.

- (b)** Poikilothermic animals are cold-blooded animals whose body temperature varies with the external environment.

**Answer 7****(a)**

**(i)** When pollen grains get deposited on the stigma of a flower, following changes take place:

- i. Pollen grains enlarge due to absorption of water.
- ii. They germinate to produce a pollen tube that reaches the stigma through the style.
- iii. Formation of two non-motile male gametes takes place.
- iv. After reaching the ovary, the pollen tube enters the ovule through the micropyle, so that fertilisation can take place.

**(ii)** Antibodies are immunoglobulins (a type of proteins) which act against germs or their secretion and destroy them. Antibodies are produced by lymphocytes on exposure to antigens.

**(b)**

**(i)** Characteristics of annelids:

- Annelids are worm-like, having a round, slender body that tapers at both ends.
- Annelids are triploblastic and show organ level of organisation along with bilateral symmetry.
- They have a complete alimentary canal with mouth and anus.
- Sexes are separate and they reproduce sexually.

**(ii)** The hypothalamus acts like a thermostat. When the body tends to cool below the normal temperature, it switches on or speeds up the heat-producing process. When the body tends to get overheated, it accelerates the cooling process and switches off the heat-producing process.