



DELHI PUBLIC SCHOOL NEWTOWN  
SESSION 2024-25  
HALF YEARLY EXAMINATION

CLASS: IX  
SUBJECT: BIOLOGY [SET A]

FULL MARKS: 80  
TIME: 2 HOURS

*Answers to this paper must be written on the paper provided separately.  
You will not be allowed to write during the first 15 minutes.  
This time is to be spent in reading the question paper.  
The time given at the head of this paper is the time allowed for writing the answers.*

*Section A is compulsory. Attempt any four questions from Section B.  
The intended marks for questions or parts of questions are given in brackets [ ].  
This question paper consists of seven printed pages.*

**SECTION A**

(Attempt all questions from this section)

**Question 1**

Select the correct answers to the questions from the given options. (Do not copy the question. Write the correct answer only):

[15]

- (i) Assertion (A)- Parenchyma cells help in storage of food.  
Reason (R)- Parenchyma cells have large nucleus.  
(a) Both A and R are false (b) A is true and R is false  
(c) A is false and R is true (d) Both A and R are true
- (ii) Teeth which help to tear the flesh of animals:  
(a) Incisor (b) Canine  
(c) Premolar (d) Molar
- (iii) Riya found out that when she kept some seeds in water, they have shown the development of radicle and plumule. Help Riya in understanding which tissue has helped in this growth.  
(a) Parenchyma (b) Sclerenchyma  
(c) Apical meristem (d) Collenchyma
- (iv) Rahul went to the doctor as he was not feeling well from a few days. His face was pale and he was feeling tired. After observing his blood reports, doctor told him that he is suffering from Anaemia. Identify the vitamin which is deficient in his body.  
P. Folic acid Q. Pantothenic acid  
R. Pyridoxine S. Thiamine  
(a) Only P (b) Only R  
(c) Only Q (d) Only S

- (v) The stalk of a flower is also known as:
- |              |             |
|--------------|-------------|
| (a) Peduncle | (b) Sessile |
| (c) Pelvis   | (d) Pedicel |

- (vi) Water soluble vitamins are:
- |                |                |
|----------------|----------------|
| (a) A, B and C | (b) B and C    |
| (c) A, D and E | (d) B, D and E |

- (vii) Kishan and his friends were observing the changes in a caterpillar which was feeding on the lemon leaves kept in his balcony. They observed the animal everyday and found it changing to a pupa and then one day it changed into a beautiful butterfly. Each of them had their own idea about the phylum of these animals.

Identify who said the correct phylum among them?

- |                     |                      |
|---------------------|----------------------|
| 1. Rohit- Mollusca  | 2. Rashi- Arthropoda |
| 3. Kishan- Annelida | 4. Piu- Nematoda     |

- |                       |                      |
|-----------------------|----------------------|
| (a) Rohit is correct  | (b) Rashi is correct |
| (c) Kishan is correct | (d) Piu is correct   |

- (viii) Raj was studying about different kinds of tissues in a human body. Help him to identify the type of tissue present in some parts of kidney tubule:

- |                         |                         |
|-------------------------|-------------------------|
| (a) Columnar Epithelium | (b) Cuboidal Epithelium |
| (c) Squamous Epithelium | (d) Cardiac muscle      |

- (ix) Riddhi tried to understand the function of two organelles present in human body. She tabulated the pairs as follows:

Organelles	Function
P	Enzyme synthesis
Q	Intracellular digestion

- |  |                                 |
|--|---------------------------------|
| (a) P- Ribosome and Q- Vacuole         | (b) P- Vacuole and Q- Lysosome  |
| (c) P- Golgi Apparatus and Q- Lysosome | (d) P- Ribosome and Q- Lysosome |

- (x) Assertion (A) - Anthocyanin is present in the chromoplast of flowers.

Reason (R) - It gives yellow colour to the flower.

- |                              |                              |
|------------------------------|------------------------------|
| (a) Both A and R are false   | (b) A is true and R is false |
| (c) A is false and R is true | (d) Both A and R are true    |

- (xi) In Nitrogen Cycle we see that bacteria plays very important role. Rihana, was trying to understand the importance of denitrifying bacteria. Help her to identify a denitrifying bacteria from the below:

- |                       |                        |
|-----------------------|------------------------|
| P. <i>Rhizobium</i>   | Q. <i>Nitrosomonas</i> |
| R. <i>Pseudomonas</i> | S. <i>Nitrobacter</i>  |

- |                  |                  |
|------------------|------------------|
| (a) Both P and S | (b) Only R       |
| (c) Only S       | (d) Both Q and P |

- 

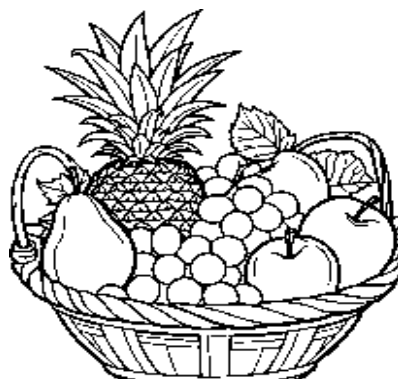
- A/3**

## Question 2

(i) Name the following: [5]

- (a) The tissue which connects muscle to bones.
- (b) A condition in which petals are fused.
- (c) The arrangement of flowers on the stem of a plant.
- (d) Scientist who discovered Penicillin.
- (e) Full form of ATP.

(ii) Given below is the diagram of a basket with different fruits. Read the information given below the diagram and fill in the blanks: [5]



Vitamin C deficiency causes \_\_\_\_ (a) \_\_\_\_\_. The condition in which a person suffers due to unbalanced diet is called \_\_\_\_ (b) \_\_\_\_\_. Amino acids are broken down in the liver by a process called \_\_\_\_ (c) \_\_\_\_\_. Glucose is stored in our body in the form of \_\_\_\_ (d) \_\_\_\_\_. General chemical formula of a disaccharide is \_\_\_\_ (e) \_\_\_\_\_.

(iii) Arrange and rewrite the terms in each group in the correct order so as to be in a logical sequence beginning with the term that is underlined. [5]

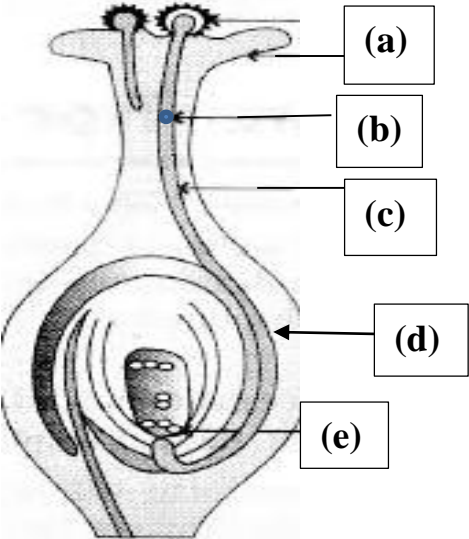
- (a) Cotyledon, Seed coat, Plumule, Epicotyl.
- (b) Pyruvate, ATP, Cell, Mitochondria.
- (c) Pisces, Chordata, Bony fish, Carp.
- (d) Calyx, Gynoecium, Corolla, Androecium.
- (e) Epiglottis, Mouth, Stomach, Oesophagus.

(iv) Read the explanation given below and name the structure: [5]

- (a) Gastric juice is secreted from the inner lining of.
- (b) A mass of food laden cell present in the ovary region of a flower.
- (c) Group of nectar secreting cells.
- (d) Protective coverings of the ovules.
- (e) The outermost layer of maize which is rich in protein.

- (v) Given below is the diagram of double fertilization. Match the structures marked (a) To (e) with their correct functions:

[5]

Double Fertilisation in Flower	Functions
	<ol style="list-style-type: none"> <li>1. Tube which carries the male nuclei towards the micropyle</li> <li>2. Contains the ovule</li> <li>3. Help in fertilisation as it contains the male gamete</li> <li>4. Help in fertilizing egg cell to produce zygote</li> <li>5. Hold the pollen grain during pollination</li> <li>6. Contains the egg cell.</li> </ol>

### SECTION B

(Attempt any four questions from this section)

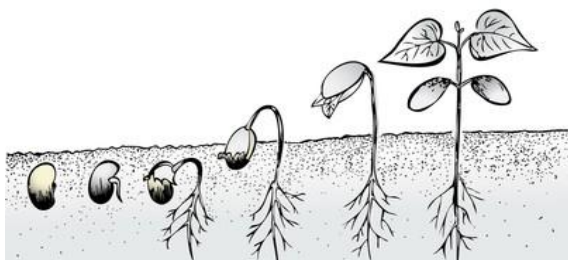
#### Question 3

- Define Balanced Diet.
- Mention the name of the two pigments present in bile.
- Identify the type of germination shown in the picture below and define it.

[1]

[2]

[2]



- Blood is a very important tissue in our body. Mention two important functions of blood.
- Draw a neat labelled diagram of a plant cell.

[2]

[3]

#### Question 4

- Dead seeds in the experiment of respiration are treated with carbohic acid. Give reasons to support your answer.
- Name the end products of carbohydrate and protein digestion.
- Maize is a Dioecious or Monoecious plant? Support your answer with a valid reason and mention the name of another plant belonging to the same category.

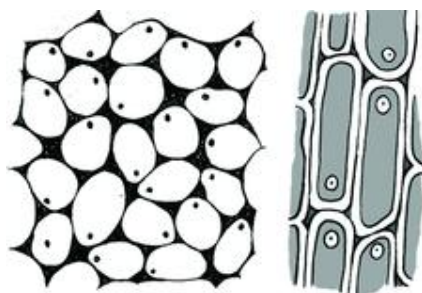
[1]

[2]

[2]

- (iv) Identify the tissue and write one main characteristic feature of the tissue given below:

[2]

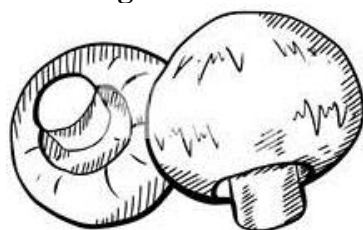


- (v) Mention the three criteria of a good antibiotic.

[3]

### Question 5

- (i) Mention the name of the disease caused due to the deficiency of Niacin. [1]  
 (ii) Mention one important function of- [2]  
 (a) Nitrifying bacteria  
 (b) Antibiotic  
 (iii) Mention the scientific name of the organism given below and mention any two Vitamins found in this organism. [2]



- (iv) In agricultural fields bacteria plays a very important role. Mention the scientific name of the bacterium which are present in root nodules of leguminous plants. Mention the name of the antibiotic given to protect us from typhoid. [2]  
 (v) Given below is a table showing the names of enzyme, substrate acted upon and products formed. Complete the table by filling the blanks (1-3): [3]

Region	Secretion(Gland)	Enzymes	Substrate	Products
Small Intestine	1. _____	Steapsin	2. _____	3. _____

### Question 6

- (i) Hydrochloric acid present in the gastric juice is important. Justify the statement. [1]  
 (ii) Write two equations to show the role of bile on chyme and fat. [2]  
 (iii) Mention any two advantages of self pollination. [2]  
 (iv) Define respiration and write the balanced equation of the process. [2]  
 (v) Draw a neat labelled diagram of a premolar tooth in human body. [3]

### Question 7

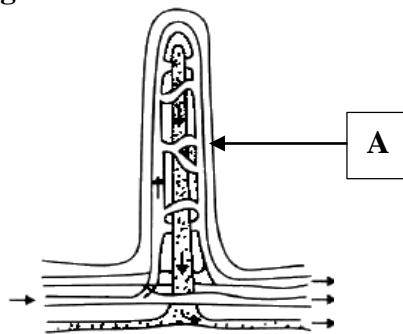
- (i) Define Tissue. [1]
- (ii) Name the enzyme which helps to digest starch in the mouth and mention the product formed from this digestion. [2]
- (iii) What do you understand by the term “Monadelphous”. Name the part of the androecium which produces pollen. [2]
- (iv) Mention the name of the conducting vessel through which water and mineral is conducted in a plant and explain why it is known as a complex tissue. [2]
- (v) Observe the diagram given below and answer the following questions: [3]



- (a) Identify the phylum of the above organism.
- (b) Mention two characteristic features of the phylum to which this animal belong.

### Question 8

- (i) Define Vaccination. [1]
- (ii) What do you understand by the term “Cartilaginous fish”? Mention the number of chambers present in the heart of Pisces. [2]
- (iii) Is Respiration anabolic or catabolic process? Justify with proper reason. Why is lime water used in the experiments of respiration? [2]
- (iv) Differentiate between Pasteurization and Sterilization. [2]
- (v) Observe the diagram given below and answer the following questions: [3]



- (a) Identify the structure “A” shown above.
- (b) Mention the location where we find this structure “A” in the human body.
- (c) “Structure A helps more in absorption of digested food”. Explain with reasons.