



# BOYS' HIGH SCHOOL AND COLLEGE

FIRST TERM EXAMINATION (2023-24)

CLASS – IX

BIOLOGY

Estd. 1861

Time: Two Hours

MM:80

*SECTION A is compulsory. Attempt any four questions from SECTION B. The intended marks for questions or parts of questions are given in brackets [ ].*

## Section A (40 Marks)

(Attempt All questions from this section)

### Question 1

Choose the correct answers to the questions from the given options.  
(Do not copy the question, write the correct answer only)

[15]

- i. The barrier between the protoplasm and the outer environment in a plant cell is called :  
a) Nuclear membrane b) Plasma membrane c) Tonoplast  
d) Cell wall
- ii. Which of the following is the correct definition of tissue?  
a) Group of dissimilar cells which perform similar functions.  
b) Group of similar cells which perform different functions.  
c) Group of similar cells which perform specific functions.  
d) Group of dissimilar cells which perform different functions.
- iii. The reactions of the Krebs's cycle occurs in the:  
a) Cytoplasm b) Mitochondria c) Chloroplast d) Ribosomes
- iv. The phenomenon when anthers and the stigma of a flower grow at different heights is termed as:  
a) Autogamy b) Herkogamy c) Allogamy d) Heterostyly
- v. The number of nuclei in an embryo sac is:  
a) Two b) Three c) Six d) Eight
- vi. The conditions necessary for germination are:  
a) Oxygen, suitable temperature and water  
b) Good soil, water and air  
c) Light, oxygen, suitable temperature, water  
d) Good soil, suitable temperature, and light.
- vii. 'All cells arise from pre-existing cells' was stated by:  
a) Rudolf Virchow b) Theodor Schwann c) Robert Hooke d) Antony van Leeuwenhoek
- viii. The tissues responsible for making the skin elastic are :  
a) Tendons. b) Areolar tissue c) Ligaments d) Adipose tissue
- ix. In the process of respiration:  
a) Glucose is synthesised  
b) Glucose is converted into oxygen.  
c) Pyruvic acid is converted into glucose.  
d) Glucose is converted into carbon dioxide and water releasing energy.
- x. Pollen grains of flowers pollinated by insects are:  
a) Rough and sticky b) Rough and dry c) Smooth and dry d) Large and showy
- xi. Which of the following cell organelle are found only in a plant cell?  
a) Mitochondria b) Ribosomes c) Plastids d) Golgi complex
- xii. A typical monocot seed does not have:  
a) Bract b) Scutellum c) Coleoptile d) Coleorhiza
- xiii. Which of the following is the living tissue in xylem?  
a) Vessels b) Parenchyma c) Tracheid d) Fibres
- xiv. Which of the following is not the correct occurrence after fertilization?  
a) The wall of the ovary becomes the pericarp.  
b) Ovules become the seed.  
c) Ovary becomes the fruit  
d) Calyx becomes the outer covering of fruit.
- xv. In ex- albuminous seeds the food is generally stored in the:  
a) Endosperm b) Testa c) Cotyledons d) Hypocotyl

### Question 2

- i) Write the biological /technical term for the following:
  - i. A flower in which both male and female reproductive organs are absent.
  - ii. The colouring pigment found in the cell sap in plants.
  - iii. Different timing of maturation of androecium and gynoecium.
  - iv. The tissue which lines the intestine and respiratory tract.
  - v. The proteinaceous part of a maize endosperm.

[5]



ii) The statements given below are wrong. Correct and rewrite them by changing the underlined word. [5]

- i. The golgi apparatus form a supportive framework for the cell.
- ii. The living cells inside the bones are called matrix.
- iii. Placentation is a group of flowers arranged on a twig of a plant.
- iv. The protective covering of the ovule is called nucellus.
- v. The chemical that absorbs carbon dioxide in experiments is pyrogallic acid.

iii) Choose the odd one out from the following terms and name the category to which the others belong. [5]

- i. Chlorophyll, carotene, chromatin, xanthophyll
- ii. Epithelial tissue, collenchyma, muscular tissue, nervous tissue
- iii. Synergids, polar nuclei, pollen grain, antipodal cells
- iv. Companion cells, tracheids, vessels, xylem parenchyma.
- v. Herkogamy, Self-sterility, Cleistogamy, Uni-sexuality

iii) Give any two examples of each of the following: [5]

- i. Prokaryotic cell
- ii. Albuminous seed
- iii. Ornithophilous flower
- iv. Fluid connective tissue
- v. Chromoplast

iv) Write the exact location and one function of each of the following: [5]

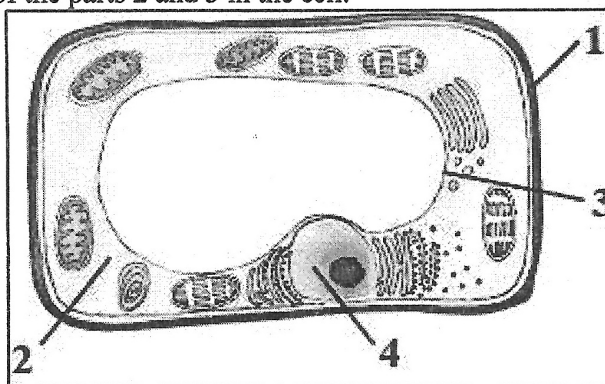
- i. Micropyle
- ii. Receptacle
- iii. Chlorophyll
- iv. Cartilage
- v. Placenta

### SECTION B (40 marks)

(Attempt any four questions from this Section)

Question 3

- i. Write balanced chemical equations for aerobic and anaerobic respiration. [1]
- ii. List any two advantages of self and cross pollination. [2]
- iii. Distinguish between the following pairs : [2]
  - a. Monoecious plant and Dioecious plant
  - b. Complete flower and Incomplete flower
- iv. Explain briefly the various stage in the germination of a maize grain. [2]
- v. Observe the given diagram of the cell and answer the given questions: [3]
  - a. Is this a plant or an animal cell? Give a reason for your answer.
  - b. Label and write the function of the parts 1 and 4.
  - c. What is the role of the parts 2 and 3 in the cell.

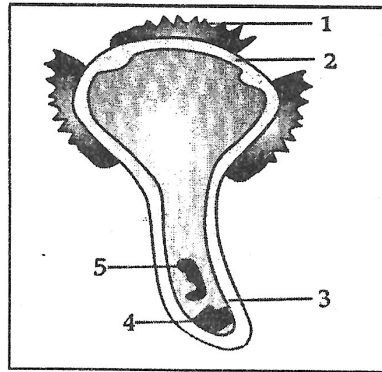


Question 4

- i. What is a perianth? [1]
- ii. State any two characteristics of prokaryotic cells and eukaryotes. [2]
- iii. Give one point of difference between each of the following on the basis of what is indicated in the bracket: [2]
  - a. Striated and Smooth muscles (Location)
  - b. Parenchyma and sclerenchyma (Function)
- iii. Complete the following sentences with appropriate words: [2]

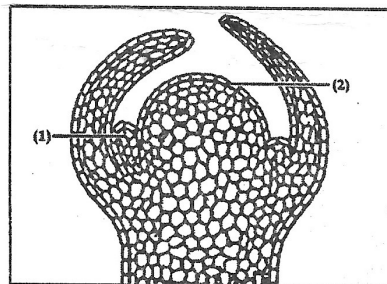
The \_\_\_\_\_ (a) of the maize grain consists of a single cotyledon called \_\_\_\_\_ (b), a radicle and a plumule. Radicle is enclosed in \_\_\_\_\_ (c) and the plumule is enclosed in \_\_\_\_\_ (d).

- iv. ✓ Study the given diagram and answer the question: [3]
- Name the parts labelled 1 and 2.
  - How is the part 3 formed during germination? What is its main function?
  - What happens to the parts 4 and 5 during the process.



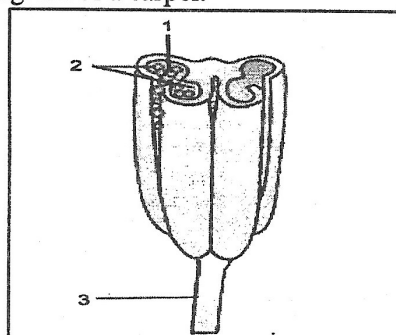
Question 5

- Define viviparous germination with an example. [1]
  - Mention one difference between each of the following pair with reference to what is given in the bracket: [2]
    - Glycolysis and Krebs's Cycle ( End products formed)
    - Aerobic respiration and Anaerobic respiration ( Occurance)
  - Write briefly about the following as specified by each: [2]
    - Cell theory (its content)
    - Lysosomes (functions)
  - Explain any two ways by which nature favours cross -pollination. [2]
- (v) Study the diagram given below and answer the questions that follow: [3]
- Identify the structure and mention its location and function in the plant.
  - Label the parts 1 and 2.
- c. Write the chief characteristic features of these tissues.



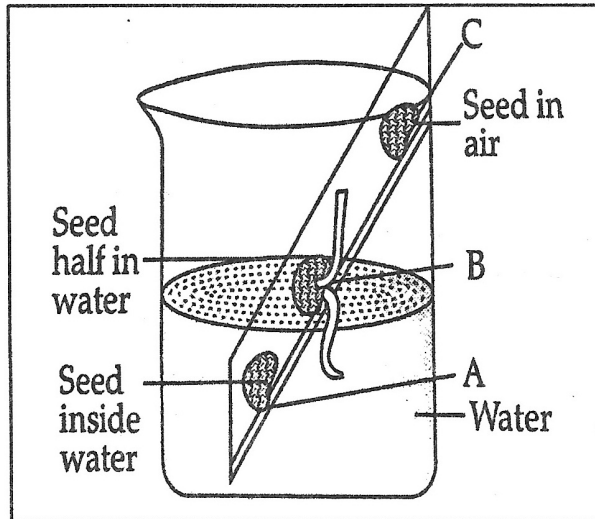
Question 6

- 'Respiration is said to be the reverse of photosynthesis'. Explain. [1]
- Differentiate between the following on the basis of what is indicated in the bracket: [2]
  - Nucleus and Nucleolus (Function)
  - Cell wall and cell membrane (Composition)
- Describe the structure of an ovule. [2]
- Explain the following terms: [2]
  - Autogamy and Allogamy
  - Anabolic process and catabolic process.
- The following figure shows a particular structure of a flower. [3]
  - Identify the structure and state its location and function.
  - Label the parts 1-3
  - Draw a neat labelled diagram of a carpel.



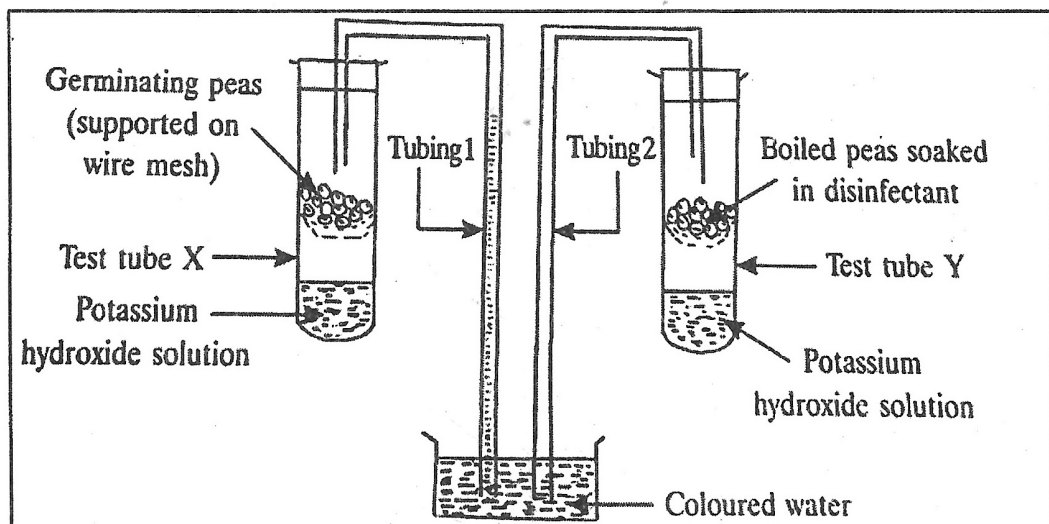
**Question 7**

- i. Write the full form of ATP. Why is it called the energy currency of the cell? [1]
- ii. Give biological reasons for the following: [2]
  - a. Cells are generally of small size.
  - b. Maize seed is known as maize grain.
- iii. Explain the process of double fertilization? [2]
- iv. Distinguish between the following pairs with an example in each case. [2]
  - a. Protandry and Protogyny
  - b. Monoadelphous condition and Diadelphous condition
- v. The diagram given below shows three bean seeds placed at different levels. Observe it and answer the following questions: [3]
  - a. What changes will you observe in the seeds A, B and C after a few days.
  - b. Explain the type of germination the bean seed shows.
  - c. Draw a neat labelled diagram showing the internal structure of the bean seed.



**Question 8**

- i. Explain protoplasm and write its elements? [1]
- ii. Write any two adaptations of the following: [2]
  - a. Hydrophilous flower
  - b. Anemophilous flower
 State one functional difference between each of the following pairs: [2]
  - a. Calyx and Corolla
  - b. Collenchyma and chlorenchyma
- iii. Explain the following terms giving an example : [2]
  - a. Ex-albuminous seeds
  - b. Bracts
- iv. Study the experimental set given below and answer the following questions: [3]
  - a. Name and define the biological process shown in the experiment.
  - b. What was the purpose of keeping potassium hydroxide in test tubes X and Y.
  - c. Why has the coloured water risen in tubing 1?



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