

# HP BOARD March, 2019

Time : 3 Hrs.

Note: Candidates are required to give their answers in their own words as far as practicable.  
Marks allotted to each question are indicated against it.

Special Instructions :

- (1) While answering your Questions, you must indicate on your Answer-book the same Question No. as appears in your Question paper.
- (2) Do not leave blank page/pages in your Answer-book.
- (3) All questions are compulsory and are divided into 4 sections.
- (4) Question number 1 to 5 are of 1 mark each.
- (5) Question number 6 to 11 are of 1½ marks each.
- (6) Question number 12 to 15 are 2 marks each.
- (7) Question number 16 to 23 are 2½ marks each.
- (8) Question number 24 to 25 are 3 marks each.
- (9) Question number 26 to 28 are 4 marks each.
- (10) PISA based questions are (\*) marked in this paper.

## SECTION-A

1. Cell wall of Bacteria is made up of  
(a) Cellulose (b) Lignin  
(c) Glycogen (d) Peptidoglycan [1]
2. Casparian thickening is found in  
(a) Pericycle of root (b) Endodermis of root  
(c) Pericycle of stem (d) Endodermis of stem [1]
3. Middle lamella contains  
(a) Chitin (b) Lignin  
(c) Pectin (d) Cellulose [1]
4. Water reaches to the top plant due to  
(a) Root pressure (b) Transpiration  
(c) Capillary (d) Diffusion [1]
5. The food that enters the intestine from stomach called  
(a) Chyle (b) Chyme  
(c) Fundus (d) None of the above [1]

## SECTION-B

What is PROTHALLUS ?

OR

What is HETEROSPORY ? What is its significance ?

[1½]

7. What is symplast Pathway of water movement in root ?

OR

What is Biological Nitrogen Fixation ? Name well known nitrogen fixing bacteria. [1½]

8. What is GUTTATION ? Name the conditions leads to GUTTATION.

OR

What is VERNALISATION ? [1½]

9. What is the role of BILE SALT in digestion of Fats ?

OR

What is HETEROCRINE GLAND ? Give example. [1½]

10. What is VITAL CAPACITY of lung ? What are its significance ? [1½]

11. What is closed circulatory system ? What are its significance ? [1½]

12. What are PHYLLOCLADE and CLADODE ? [2]

13. What are Ribs ? Write different types of Ribs ? [2]

14. Differentiate SER and RER. [2]

15. Give the graphic representation of KREB's Cycle. [2]

## SECTION-C

16. What is Herbarium ? What is its role in Taxonomy. [2½]

[2½]

17. Define the following :

- a) SYNAPSIS
- b) CROSSING OVER
- c) CHIASMATA

[2½]

18. What happens when a plant cell is placed in a

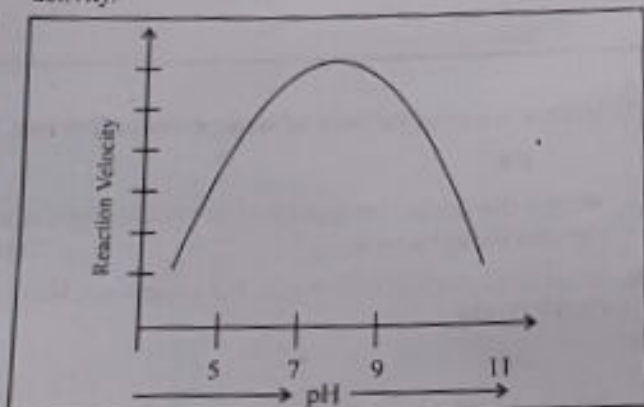
- a) ISOTONIC solution
- b) HYPERTONIC solution
- c) HYPOTONIC solution

OR

Give schematic representation of the HATCH and SLACK pathway of photo synthesis. [2½]

19. Explain the factors responsible for ASCENT of water in Xylem. [2½]

20. \*Observe the graph showing the effect of pH on enzyme activity.



- a) What is the optimum pH for most of enzyme action?
- b) Why does enzyme activity decrease as we shift to alkaline and acidic side.
- c) Name digestive enzyme showing optimum activity in acidic medium. [2½]

21. Draw well labelled diagram of the U.S. of Human eye. [2½]

22. Draw a labelled T.S. of Dicot Root. [2½]

23. Draw a well labelled diagram of Cell Organelle CHLOROPLAST. [2½]

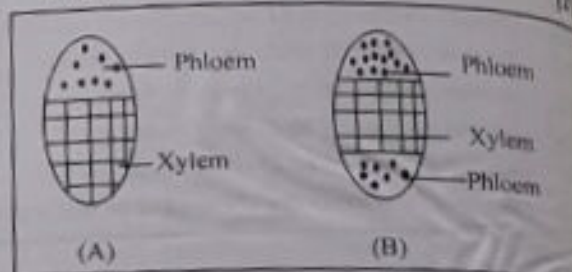
24. Differentiate Prokaryotic Cell and Eukaryotic Cell. [3]

Column-1	Column-2
a) Bilirubin and Biliverdin	i) Parotid (D)
b) Hydrolysis of Starch	ii) Bile
c) Digestion of Fat	iii) Lipase (C)
d) Salivary Gland	iv) Amylase

SECTION-D

26.a) What is Venation? Write its types. [2]

b) Identify the type of vascular bundle from diagram A and B. [2]



27.\*a) A plant cell has 0.5% concentration of salt in its sap. It is placed in 5% salt solution.

- i) What will happen to the cell?
- ii) How will you describe concentration of outside solution?
- iii) What changes are required to bring normalcy of the cell?
- b) Why do some plants become insectivorous?

28.\*a) Breast produces milk after delivery due to hormone produced in female. Breast feeding is beneficial to the child as well as mother.

- i) Which hormone stimulates milk production after delivery?
- ii) In what way is breast feeding good for mother?
- b) Sino-atrial node is called the pacemaker of our heart. Why?