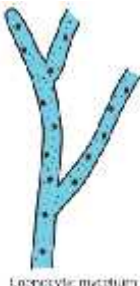


**BIO-BOTANY ANSWER KEY
HIGHER SECONDARY FIRST YEAR
PART-A
SECTION-I**

Q.No.

| | | |
|--------------------|---|------------------|
| Section I | Choose The Correct Answer:- | 8 X 1 = 8 |
| 1 | C) They form blooms in polluted water bodies | 1 |
| 2 | A) Heterospory | 1 |
| 3 | A) Fasciculated roots | 1 |
| 4 | B) Raceme is a racemose inflorescence having main axis shortened and flowers borne acropetally | 1 8 |
| 5 | B) (i) is correct and (ii) is wrong | 1 |
| 6 | D) Lipids can rarely flip-flop, Proteins cannot | 1 |
| 7 | D) 16 C | 1 |
| 8 | A) Sucrose | 1 |
| Section II | Answer any four questions:- | 4 X 2 = 8 |
| 9 | It is Lytic or Virulent Cycle of Phage (ii) Penetration (iv) Assembly and Maturation | 1 + 1 2 |
| 10 | (i) Monosaccharides are called reducing sugar because Monosaccharides contain free aldehyde or ketone group. Eg: Glucose (ii) Disaccharides do not have free aldehyde or ketone group Eg: Sucrose | 1 2 1 |
| 11 | (A) Pitcher of Nepenthes – The apical part of the leaf (B) Phyllode of Acacia – Modification of Petiole or Rachis | 1 2 1 |
| 12 | (i) Interphase is the longest phase (ii) Mitosis and Cytokinesis is the shortest phase of the cell Cycle | 1 2 1 |
| 13 | (i) The outer membrane is smooth, highly permeable to small molecules and it contains proteins called Porins. (ii) The inner membrane is convoluted called cristae. Cristae contain most of the enzyme for electron transport system | 1 2 1 |
| 14 | (i) Vinblastin (ii) Curcumin (or any other two relevant alkaloids) | 1 + 1 2 |
| Section III | Answer any three questions:- | 3 X 3 = 9 |
| 15 | Bryophytes produce biflagellate antherozoids that swims and reach the archegonium. Fuse with the egg to form diploid zygote. So water is essential for fertilization. | 1½ + 1½ 3 |

- 16 (i) **Accessory Organs:-**
 1. They do not have direct role in reproduction
 2. It protect the essential organs
 3. It attract insects for pollination
 (ii) **Reproductive Organs:-**
 1. They have direct role in reproduction
 2. Pollination and fertilization is takes place
 3. It produce fruit and seeds
- 17 Structure of Coenocytic Mycelium
- Draw
- 
- 18 The above picture refers to the cladistic analysis.
- From the given figure it is easy to understand that Bryophytes are the most primitive group of plants than the other groups, whereas Angiosperms are the advanced group of organisms. Thus cladistics helps to elucidate mechanism of evolution.
- 19 A) Integral Protein
 B) Hydrophobic Tail
 C) Glycoprotein

1½

3

1½

3

3

1

2

3

1 + 1 + 1

3

2 X 5 = 10**Section IV Answer any two questions:-****20 A**

| Classification of Algae | | | | |
|-------------------------|---------------|---|--|---------------------------|
| S. No | Class | Pigments | Flagella | Reserve Food |
| 1. | Chlorophyceae | Chlorophyll a and b, Carotenoids, Xanthophyll | 1,2,4 or more equal anterior whiplash flagella | Starch |
| 2. | Phaeophyceae | Chlorophyll a and c, Xanthophyll | Two unequal whiplash and tinsel lateral flagella | Laminarin starch and fats |
| 3. | Rhodophyceae | Chlorophyll a, r-Phycoerythrin | Absent | Floridean starch |

Pigments – 2
 Flagella – 2
 Reserve Food – 1
 2 + 2 + 1 = 5

| Root zones | | | |
|-------------------|---|---|---|
| Feature | 1. Meristematic Zone Region of cell division | 2. Zone of Elongation | 3. Zone of Maturation |
| Position | It lies just above the root cap | It lies just above the meristematic zone | It lies above the zone of elongation |
| Types of cells | Meristematic cells, actively divide and continuously increase in number | Elongated cells | Mature differentiated cells |
| Functions | This is the main growing tip of the root | The cells increase the length and cause enlargement of the root | The cells differentiate into various tissues like epidermis, cortex and vascular bundles. It also produces root hairs which absorb water and minerals from the soil |

Position – 1
Types of cells – 2
Functions – 2

5

- 21 A (i) *Pisum sativum* belongs to Fabaceae Family
(ii) Diagnostic features of *Pisum sativum*

1

| S. No | Diagnostic features | <i>Pisum sativum</i> |
|--------------|----------------------------|---|
| 1. | Calyx | Sepals 5, synsepalous, green, valvate aestivation |
| 2. | Corolla | Petals 5, green, papilionaceous corolla, descendingly imbricate aestivation |
| 3. | Androecium | Stamens 10, diadelphous, (9)+1, anthers ditheous, basifixed, introse |
| 4. | Gynoecium | Monocarpellary, unilocular with many ovules on marginal placentation, ovary superior, style simple, |
| 5. | Fruit | Legume |

(Calyx and Corolla – Any two characters)

Calyx - ½
Corolla – ½
Androecium – 1
Gynoecium – 1
Fruit - 1

5

| | | | |
|------|---|---|---|
| 21 B | (i) At the end of the Meiosis cell division produces four daughter cells | 1 | |
| | (ii) Significance of Meiosis cell division:- | | |
| | 1. This maintains the definite constant number of chromosomes in organisms | 1 | |
| | 2. Crossing over takes place and exchange of genetic material leads to variations among species. These variations are the raw materials to evolution. | 1 | 5 |
| | 3. Meiosis leads to genetic variability by genes into gametes through independent assortment. | 1 | |
| | 4. Adaptation of organisms to various environmental stress. | 1 | |