

**DIRECTORATE OF GOVERNMENT EXAMINATION CHENNAI-600 006**  
**HIGHER SECONDARY FIRST YEAR EXAMINATION – MARCH/APRIL 2023**  
**PART – I BIO-BOTANY KEY ANSWER**

**Maximum Marks : 35**

**Note :**

1. Answer written only in **BLUE** or **BLACK** should be evaluated.
2. Use Pencil to draw diagram.
3. In Section-1, choose the correct answer and write the option code with corresponding answer.

**Section – 1**

**Answer all the Questions.**

**8×1=8**

| Q. No | Opt ion    | TYPE –A                              | Q. No | Opt ion            | TYPE –B                              | Marks |
|-------|------------|--------------------------------------|-------|--------------------|--------------------------------------|-------|
| 1     | (c)        | Movement of Chromosomes towards Pole | 1     | (a)                | Serotaxonomy                         | 1     |
| 2     | (a)        | Bacteria – Crown gall                | 2     | (b)<br>(or)<br>(d) | Phellem<br>(or)<br>Phellogen         | 1     |
| 3     | (b)        | Influx of K <sup>+</sup>             | 3     | (d)                | Potato, Tomato, Cotton               | 1     |
| 4     | (a)        | 400 to 700 nm                        | 4     | (b)                | Influx of K <sup>+</sup>             | 1     |
| 5     | (a)        | Serotaxonomy                         | 5     | (c)                | Movement of Chromosomes towards Pole | 1     |
| 6     | (d)        | Potato, Tomato, Cotton               | 6     | (a)                | Bacteria – Crown gall                | 1     |
| 7     | (b)<br>(d) | Phellem<br>(or)<br>Phellogen         | 7     | (d)                | Foliar bud, Cauline bud              | 1     |
| 8     | (d)        | Foliar bud, Cauline bud              | 8     | (a)                | 400 to 700 nm                        | 1     |

| <b>SECTION – 2</b>                |   |   | <b>4×2 = 8</b>                                    |   |
|-----------------------------------|---|---|---|---|
| <b>Answer any four questions.</b> |   |   |   |   |
| 9.                                | 1. Xylem plates alternates with phloem plates<br>2. Example : Lycopodium clavatum   |   | 1<br>1  | 2 |
| 10.                               | <b>Aggregate Fruit</b>  | <b>Multiple Fruit</b>   | 2   | 2 |
|                                   | It develops from a single flower having an apocarpous pistil.   | It develops from the whole inflorescence along with its peduncle. |   |   |
| 11.                               | 1. It provides two dimensional images.<br>2. The magnification is 1-3 lakhs times.<br>3. The resolving power is $2-10 \text{ A}^\circ$<br>4. It is used for studying the detailed structure of viruses, mycoplasma and cellular organelles.<br>(Any two ) |   | 2   | 2 |
| 12.                               | <b>Enzyme</b>   | <b>Source</b>   | <b>Uses</b>                                       |   |
|                                   | Bacterial protease  | Bacillus  | Biological detergents                             |   |
|                                   | Bacterial glucose isomerase   | Bacillus  | Fructose Syrup manufacture                        |   |
|                                   | Fungal lactase  | Kluyveromyces   | Breaking down of lactose to glucose and galactose |   |
|                                   | Amylases  | Aspergillus   | Removal of Starch in woven cloth production       |   |
|                                   | <b>(Any two)</b>  |   |   |   |
| 13.                               | <b>Porous wood</b>  | <b>Non Porous wood</b>  |   |   |
|                                   | Common in Angiosperms   | Common in Gymnosperms   |   |   |
|                                   | Porous because it contain vessels   | Non –porous because it does not contain vessels                   |   |   |
|                                   | Example : Morus   | Example : Pinus   |   |   |
|                                   | <b>(Any two)</b>  |   |   |   |
| 14.                               | Nitrogen is present in the atmosphere in gaseous form. Plants cannot use $\text{N}_2$ in gaseous form. It can be absorbed in the form of Nitrate.   |   | 2   | 2 |

| <b>SECTION – 3</b>  |   |              |   |
|---|---|--------------|---|
| <b>Answer any three questions. Question No. 19 is Compulsory.</b> |   | <b>3x3=9</b> |   |
| 15.   | <p><b>Merits of Five kingdom classification :</b></p> <ul style="list-style-type: none"> <li>• The classification is based on the complexity of cell structure and organization of thallus</li> <li>• It is based on the mode of nutrition</li> <li>• Separation of fungi from plants</li> <li>• It shows the phylogeny of the organisms</li> </ul> <p style="text-align: right;"><b>(Any two)</b></p> <p><b>Demerits :</b></p> <ul style="list-style-type: none"> <li>• The kingdom monera and protista accommodate both autotrophic and heterotrophic organisms, cell wall bearing organisms thus making these two groups more heterogeneous</li> <li>• Viruses were not included in the system</li> </ul> <p style="text-align: right;"><b>(Any one)</b></p> | 2            | 3 |
| 16.   | <p><b>Nepenthes :</b><br/>Pitcher is a modified leaf contains digestive enzymes. Rim of the pitcher is provided with nectar glands and acts as an attractive lid. When insect is trapped, proteolytic enzymes will digest the insect.</p>   | 3            | 3 |
| 17.   | <p>1. Diagram of Stomata<br/>2. Any two parts</p>   | 2<br>1       | 3 |
| 18.   | <p>Death of the plant or plant part consequent to senescence. The proteolytic enzymes involving PCD in plants are phytaspases</p>   | 3            | 3 |
| 19.   | <p>1. It was first observed by Flemming.<br/>2. It occur in Acetabularia alga and in oocytes of Salamandar<br/>3. Condensed Chromosome forms the Chromosomal axis.<br/>4. From which lateral loops of DNA extend.<br/>5. RNA Synthesis takes place</p> <p style="text-align: right;"><b>(Any two points)</b></p> <p>Lamp brush chromosome diagram, any two parts</p>  | 2<br><br>1   | 3 |

| <b>SECTION – 4</b>  |   | <b>2×5=10</b>       |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
|---|---|---------------------|--------------|---|----------------------------------|---|--|-----------------------------------|---|---|-------------------|-----------------------|------------------------|---|---|
| <b>Answer all questions.</b>  |   |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| 20<br>(a)   | Floral Characters of Clitoria ternatea<br>1. Inflorescence<br>2. Flower<br>3. Calyx<br>4. Corolla<br>5. Androecium<br>6. Gynoecium<br>7. Fruit and Seed<br><b>(Explanation of any three)</b><br>Floral Diagram<br>Floral Formula  | 3<br>1<br>1         | 5            |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| <b>(OR)</b>   |   |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| 20<br>(b)   | <b>Economic Importance of Fungi</b><br>1. Food<br>2. Medicine<br>3. Production of Organic Acids<br>4. Bakery and Brewery<br>5. Production of enzymes<br>6. Agriculture<br>7. Harmful activities<br><b>(Any five uses with one Example)</b>  | 5                   | 5            |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| 21<br>(a)   | <b>Difference between Anatomy of Dicot root and Monocot root</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Dicot root</th> <th style="width: 50%; text-align: center;">Monocot root</th> </tr> </thead> <tbody> <tr> <td>Pericycle Give rise to lateral roots , phellogen and a part of vascular cambium</td> <td>Gives rise to lateral roots only</td> </tr> <tr> <td>Limited number of xylem and phloem strips</td> <td>More number of xylem and phloem strips</td> </tr> <tr> <td>Conjunctive tissue parenchymatous</td> <td>Mostly sclerenchymatous. Sometimes parenchymatous</td> </tr> <tr> <td>Cambium appears as a secondary meristem</td> <td>Cambium is absent</td> </tr> <tr> <td>Xylem usually tetrach</td> <td>Usually polyarch xylem</td> </tr> </tbody> </table> | Dicot root          | Monocot root | Pericycle Give rise to lateral roots , phellogen and a part of vascular cambium | Gives rise to lateral roots only | Limited number of xylem and phloem strips | More number of xylem and phloem strips | Conjunctive tissue parenchymatous | Mostly sclerenchymatous. Sometimes parenchymatous | Cambium appears as a secondary meristem | Cambium is absent | Xylem usually tetrach | Usually polyarch xylem | 5 | 5 |
| Dicot root  | Monocot root  |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| Pericycle Give rise to lateral roots , phellogen and a part of vascular cambium | Gives rise to lateral roots only  |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| Limited number of xylem and phloem strips                                       | More number of xylem and phloem strips  |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| Conjunctive tissue parenchymatous   | Mostly sclerenchymatous. Sometimes parenchymatous   |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| Cambium appears as a secondary meristem   | Cambium is absent   |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| Xylem usually tetrach   | Usually polyarch xylem  |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| <b>(OR)</b>   |   |                     |              |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |
| 21<br>(b)   | Structure of Ganong's potometer<br>Explanation of the structure of Ganong's potometer<br><br>Diagram<br><br>Any Two Parts   | 3<br><br>1<br><br>1 | 5            |   |                                  |   |  |                                   |   |   |                   |                       |                        |   |   |