

2021

Time : 3 hours

Full Marks : 75

Pass Marks : 24

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer any **five** questions, selecting at least **one** from each Group in which*

Q. No. 1 is compulsory.

1. Select the correct answer from the options given below : $1 \times 15 = 15$

(a) A binomial nomenclature has words / parts :

(i) Five

(ii) Three

(iii) Two

(iv) One

(b) An organized and differentiated cell having cytoplasm but no nucleus is found in :

- (i) Xylem parenchyma
- (ii) Phloem parenchyma
- (iii) Companion cell
- (iv) Sieve tube element

(c) Stamens of family Brassicaceae are :

- (i) Syngenesious
- (ii) Monadelphous
- (iii) Didynamous
- (iv) Tetradynamous

(d) Opium is got from the latex of unripe fruits of :

- (i) **Thea sinensis**
- (ii) **Papaver somniferum**
- (iii) **Cannabis sativa**
- (iv) **Erythroxylon coca**

(e) Clove oil is extracted from :

- (i) **Vetiverla roots**

- (ii) **Santalum wood**
 - (iii) **Leaves of Syzygium aromaticum**
 - (iv) **Floral buds of Syzygium aromaticum**
- (f) **Bhojpatra is obtained from :**
- (i) **Leaves of Cinchona**
 - (ii) **Bark of Cinchona**
 - (iii) **Bark of Betula utilis**
 - (iv) **Leaves of Piper betle**
- (g) **Glycolate induces opening of stomata in :**
- (i) **Presence of Oxygen**
 - (ii) **High CO₂**
 - (iii) **Low CO₂ concentration**
 - (iv) **None of these**
- (h) **Water lost by transpiration is :**
- (i) **Pure water**
 - (ii) **Rich in dissolved vitamins**
 - (iii) **Rich in solutes**
 - (iv) **Rich in dissolved minerals**

(i) Which of the following is macronutrient ?

(i) Cu

(ii) Mn

(iii) Ca

(iv) Zn

(j) Calvin cycle occurs in :

(i) Cytoplasm

(ii) Chloroplast

(iii) Glyoxysomes

(iv) Mitochondria

(k) Photophosphorylation means :

(i) Formation of PGA

(ii) Formation of ADP from ATP

(iii) Formation of NADP

(iv) Formation of ATP from ADP

(l) Which of the following is iron porphyrin co-enzyme ?

(i) CoA

- (ii) FAD
 - (iii) Cytochrome
 - (iv) Aconetase
- (m) Most famous nitrogen fixing bacterium is :
- (i) **Rhizobium**
 - (ii) **Nitrobacter**
 - (iii) **Nitrosomonas**
 - (iv) **Nitrococcus**
- (n) Which character is not present in the xerophytes ?
- (i) Thick cuticle
 - (ii) Spongy parenchyma
 - (iii) Well developed mechanical tissue
 - (iv) Well developed conducting tissues
- (o) SO₂ pollution causes :
- (i) Destruction of cell wall
 - (ii) Destruction of chlorophyll
 - (iii) Destruction of Golgi bodies
 - (iv) Plasmolysis

Group – A

2. Compare the internal structure of coralloid root of **Cycas** with that of its normal root. 15
3. What is a natural system of classification ? Is Bentham and Hooker's system a natural system ? Explain. 15
4. Compare the floral structures of family Apiaceae with that of family Lamiaceae. Which of these two families is highly evolved and why ? Give suitable reasons. 15

Group – B

5. Answer the following questions : $5 \times 3 = 15$
 - (a) Mention the other uses of paddy, other than the grains being used as a staple food.
 - (b) Mention the importance of family Gramineae (Poaceae) as a source of food.

- (c) Give Botanical name of five plants of this family.

OR

Distinguish between the following : $3 \times 5 = 15$

- (a) Pine wood and Teak wood
 - (b) Essential oil and Fatty oil
 - (c) Starch of wheat from that of rice and maize
 - (d) Fibres of cotton from those of jute
 - (e) Fennel and Coriander
6. State the botanical name and family of five medicinal plants. Write detailed account of any two of them. 15

Group – C

7. Where does glycolysis occur in a cell ? Explain its different steps. 15
8. What is photophosphorylation ? Distinguish between cyclic and non-cyclic photophosphorylation. Give schematic sketches of both the pathways. 15

9. Give an account of anatomical characters of Hydrophytes with the help of suitable examples and diagrams. 15
10. What is Noise pollution ? Discuss the causes, effects and control measures of Noise pollution. 15

