

2021*Time : 3 hours**Full Marks : 100**Pass Marks : 45*

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 question*

No. 1 is compulsory.

1. Select the correct option in the following questions : 2×10 = 20

(a) A system of classification that is based on evolution, order and ancestry is known as :

(i) Natural system

(ii) Homologous system

- (iii) Analogous system
 - (iv) Phylogenetic system
- (b) Basic unit or smallest taxon of Taxonomy/
Classification is :
- (i) Variety
 - (ii) Species
 - (iii) Family
 - (iv) Kingdom
- (c) Nitrite into nitrate is converted by :
- (i) **Nitrosomonas**
 - (ii) **Nitrobacter**
 - (iii) **Rhizobium**
 - (iv) **Azospirillum**
- (d) The concept of pyramid was given by :
- (i) Mobius
 - (ii) AG Tansley
 - (iii) Charles Elton
 - (iv) Forbes

(e) Species as a unit of classification was first used by :

- (i) Linnacus
- (ii) de Candolle
- (iii) John Ray
- (iv) Huxley

(f) Karyotaxonomy is based on :

- (i) Number of chromosomes
- (ii) Bands formed on chromosomes
- (iii) Organic evolution
- (iv) Trinomial nomenclature

(g) The condition of androecium in family Cucurbitaceae is :

- (i) Free stamens
- (ii) Diadelphous
- (iii) Syngenesious
- (iv) Synandrous

(h) 10% Law for energy transfer in food chain was given by :

- (i) Reed
- (ii) Lindermann
- (iii) Stanley
- (iv) Tansley

(i) Blue-green algae are placed in the kingdom :

- (i) Monera
- (ii) Protista
- (iii) Fungi
- (iv) Plantae

(j) Species Ecology is known as :

- (i) Palaeoecology
- (ii) Community ecology
- (iii) Autecology
- (iv) Synecology

Group – A

2. What are the unique features of the following :

5×4 = 20

- (a) Fruit of Umbelliferae
- (b) Inflorescence of Gramineae
- (c) Androecium of Cucurbitaceae
- (d) Gynoecium in Cyperaceae

3. Answer the following questions : 10×2 = 20

- (a) Briefly comment on the origin of Angiosperms.
- (b) Importance of the study of phytochemistry in taxonomy.

4. Outline the salient features of Bentham and Hooker's system of classification. What are the merits and demerits of this system ?

5. Write short notes on any **two** of the following :

10×2 = 20

- (a) Cytogenetic criteria in biosystematics
- (b) α -Taxonomy

- (c) International code of Botanical Nomenclature
- (d) Keys of identification of plants
- (e) Chemotaxonomy and Numerical Taxonomy

Group – B

- 6. Describe the sources of air pollution and their effects. 20
- 7. Discuss the ecological adaptations in xerophytes. 20
- 8. Show the different stages of Xerosere with the help of suitable diagram. 20
- 9. Describe the effects of climatic factors on population. 20
- 10. Write short notes on any **two** of the following :
10×2 = 20
 - (a) Concept and characteristics of population

- (b) Green house effect and global warming
- (c) Ecological pyramid
- (d) Ozone depletion
- (e) Homeostasis

