

BankimSardar College

B.Sc. Honours SemesterIV Examination

2020

Botany Honours

Paper: Plant geography, ecology and evolution (CC8)

Class Attendance: 10 Marks

Time: 2 Hours

Full Marks: 90

Answer of each group should be in separate answer sheet

Group: A

(All questions are compulsory)

1. Answer all questions.

[1 X 10 = 10]

- a.** The theory of evolution is based on
 - i. Mutations
 - ii. Reproductive isolation
 - iii Sexual reproduction
 - iv. All of these
- b.** The term “evolution” was coined by
 - i. Darwin
 - ii. Haldane
 - iii. Oparin
 - iv. Herbert Spencer
- c.** Sympatric speciation develops reproductive isolation without
 - i. Geographic barrier
 - ii. Barrier to mating
 - iii. Barrier to gene flow
 - iv. Genetic change
- d.** The term hot spots for high diversity ecological region was coined by
 - i. Myer
 - ii. IUCN
 - iii. Kormandy
 - iv. Odum
- e.** The key criteria for determining a hot spot are
 - i. Biological augmentation

- ii. Disruption of interaction networks
- iii. Number of endemic species and degree of threat
- iv. Habitat destruction
- f. The term ecology was coined by
 - i. Haeckle
 - ii. Reiter
 - iii. Aristotle
 - iv. Linnaeus
- g. Transition zone between two ecosystem is
 - i. Ecotone
 - ii. Ecotype
 - iii. Ecocline
 - iv. Ecosphere
- h. Which one of the following classes of compounds is most useful in comparative studies for determining ancestral relationships?
 - i. Proteins
 - ii. Amino acids
 - iii. Nucleic acids
 - iv. Nucleotide sequences
- i. The models of speciation includes
 - i. Apomixis
 - ii. Allopatric
 - iii. Both apomixis and allopatric
 - iv. None of the above
- j. Two organism very rarely occupy the same niche. Such organism are called
 - i. Phenocopies
 - ii. Ecological equivalent
 - iii. Sibling species
 - iv. Ecotypes

Group B

(Attempt all questions)

[10 X 3 = 30]

2. Define quadrat method. Briefly discuss the type of quadrat. Discuss the study of plant community structure by quadrat method. [2+2+6]

3. Discuss the measurement of dissolved O₂ by azide modification of Winkler's method. [10]

4. Discuss the comparative anatomical studies of leaves from polluted and less polluted areas.

[10]

Group C

5. Attempt all questions

[10 X 2 = 20]

- a. What is the difference between habitat and niche?
- b. What is ecotype?
- c. What is edge effect?
- d. Difference between autogenic and allogenic succession?
- e. Define carrying capacity?
- f. What is endemic flora?
- g. What is ecotones?
- h. What is biodiversity?
- i. Define cryopreservation.
- j. What is coevolution?

6. Attempt any 6 questions

[6 X 5 = 30]

- a. Discuss the various stages of hydrosere.
- b. Write a short note on microclimate or phytoremediation.
- c. Write a short note on metallophytes.
- d. Discuss the sympatric and allopatric speciation.
- e. Briefly discuss the phytogeographical regions of India (Chatterjee 1960).
- f. Discuss the Age & Area hypothesis and Epibiotic theory.
- g. Discuss the Dominant flora of Eastern Himalaya.
- h. Discuss the neutral theory of molecular evolution.