

*Total number of printed pages-6*

**14 (BOT-1) 1036**

**2022**

**BOTANY**

Paper : BOT-1036

**(Plant Ecology, Environment and  
Resource Management)**

*Full Marks : 80*

Time : Three hours

***The figures in the margin indicate  
full marks for the questions.***

1. Choose the correct answer from the following : 1×8=8

(i) Which of the following statements is correct ?

(a) With high niche overlap and niche differentiation, niche packing declines

(b) High species packing is found where there is high niche overlap

(c) Niche overlap increases with niche differentiation

(d) Niche overlap decreases with niche differentiation

*Contd.*

- (ii) Which of the following *NOT* belongs to global nutrient cycle ?
- (a) Carbon cycle
  - (b) Nitrogen cycle
  - (c) Phosphorus cycle
  - (d) None of the above
- (iii) All are the characteristics of *r selected* organism excluding
- (a) less parental care
  - (b) extensive parental care
  - (c) favours highly unpredictable environment
  - (d) high intrinsic growth rate
- (iv) In a grassland community the plant species *Cyperus brevifolius* is recorded in 8 quadrates out of 10 quadrates studied. The total numbers of individuals of the species was found to be 16. The abundance value of the species will be
- (a) 5
  - (b) 2
  - (c) 3
  - (d) 1

- (v) The theory of tolerance in phytogeography
  - (a) based on macrodistribution of plants and proposed by Good (1931)
  - (b) based on both macro and microdistribution of plants and proposed by Smith (1924)
  - (c) based on microdistribution of plants and proposed by Good (1931)
  - (d) based on both macro and microdistribution of plants and proposed by Good (1931)
- (vi) The least harmful of the following is
  - (a) CFC-11
  - (b) CFC-12
  - (c) Freon-11
  - (d) HCFCs
- (vii) Smoking is injurious to health as it is associated with
  - (a) release of nicotine only
  - (b) release of both nicotine and aromatic hydrocarbons

(c) release of aromatic hydrocarbons only

(d) None of the above

(viii) The diversity which changes along with an environmental gradient is

(a)  $\alpha$  diversity

(b)  $\beta$  diversity

(c)  $\gamma$  diversity

(d) None of the above

2. Briefly describe *or* define the following : (**any four**) 3×4=12

(a) Vegetation

(b) Paleo-endemism

(c) Character displacement

(d) NTFPs

(e) Food security

(f) Residual toxicity

3. Answer **any four** of the following questions : 5×4=20

(a) Altitude as an ecological factor

(b) Impact of synthetic pesticides on agro-ecosystem

- (c) Ecological consequences of introduction of GMO
- (d) Merits and demerits of green revolution in India
- (e) Salient features to declare an area as biosphere reserve

4. Answer **any four** of the following :

- (a) What do you mean by plant communities ? Write a note on different methods adopted for studying a herbaceous plant community. 2+8=10
- (b) What do you mean by the Green house effect ? How does it impact on biological world ? Write an essay on the strategies taken by India in mitigating the problem. 2+2+6=10
- (c) Is biodiversity important for nature ? Write a note on different ex-situ biodiversity conservation strategies taken in NE India with examples. 2+8=10
- (d) Write notes on origin, evolution, botany and cultivation of **any two** indigenous aromatic plants of N-E India. 5×2=10

(e) Write notes on : 5×2=10

(i) Acceptability of Age and Area Hypothesis

(ii) The Megacentres of endemism in India

