# 2017

## BOTANY

## ( Major )

Paper : 3·1

**( Ecology, Plant Geography, Evolution )**

*Full Marks* : 60

*Time* : 3 hours

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

**1.** Choose the correct answer of the following : 1×7=7

*(a)* The general climate of an area contains a number of local variations is called

*(i)* habitat

*(ii)* niche

*(iii)* microclimate

*(iv)* environment

*(b)* Developmental stages of plant succession are known as

*(i)* climax stages

*(ii)* ecesis

*(iii)* post-climax stages

*(iv)* seral stages

(c) The inherent property of population to increase in most favourable condition when there is no competition is called

(i) carrying capacity

(ii) biotic potential

(iii) natality

(iv) environmental resistance

(d) Which of the following is a case of 'synergism'?

(i) Ecological amplitude

(ii) Eutrophication

(iii) Biomagnification

(iv) Photochemical smog

(e) A pond is an example of

(i) lentic freshwater ecosystem

(ii) lotic freshwater ecosystem

(iii) mega ecosystem

(iv) terrestrial ecosystem

(f) The Age and Area theory was propounded by

(i) Good

(ii) Willis

(iii) Wegener

(iv) Cain

(g) The occurrence of high percentage of phanerophytes in an area would indicate

(i) warm and dry climate

(ii) warm and moist climate

(iii) cold and dry climate

(iv) cold climate

2. Write short notes on any *four* of the following : 2×4=8

(a) Ecosystem as a thermodynamic unit

(b) Anatomical adaptive characters of *Eichhornia crassipes*

(c) Fundamental niche

(d) Density-dependent population growth

(e) Phytograph

(f) BOD

3. Write on any *three* of the following : 5×3=15

(a) Cybernetic nature of ecosystem

(b) The types of biotic relations among plants

(c) Functional changes during autotrophic succession

(d) The various life forms known to you

(e) Greenhouse effect and global climate change

4. Answer any *two* of the following : 10×2=20

(a) Differentiate between *r*-selected and *k*-selected species. Write a note on survivorship curves. 5+5=10

(b) Define pollutant. Write a note on the different types of pollutants in agricultural field. 2+8=10

(c) "One hundred percent flow of energy from one organism to the other is not possible." Explain the statement and give Lindeman energy flow diagram. 5+5=10

5. What is speciation? Elucidate allopatric and sympatric speciation citing examples. 2+8=10

*Or*

Define phytogeography. Describe the vegetation of Assam Valley. 2+8=10

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