



**DCC-003-001511**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. V) (CBCS) Examination**

**May/June – 2015**

**Botany : Paper - 503**

**(Ecology)**

**Faculty Code : 003**

**Subject Code : 001511**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

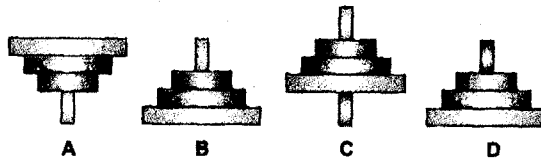
- Instructions:** (1) Write answers of all questions in main answer book.  
(2) Draw neat and labeled diagrams wherever necessary.  
(3) Figures to the right side indicate full marks for the questions.

**1 Choose the correct answer : 20**

- (1) The biomass available for consumption by the herbivores and the decomposers is called
- (a) Gross primary productivity
  - (b) Net primary productivity
  - (c) Secondary productivity
  - (d) Standing crop
- (2) The sequence of communities of primary succession in water is:
- (a) Phytoplankton, sedges, free-floating hydrophytes, rooted hydrophytes, grasses and trees.
  - (b) Phytoplankton, free-floating hydrophytes, rooted hydrophytes, sedges, grasses and tree.
  - (c) Free-floating hydrophytes, sedges, phytoplankton, rooted hydrophytes, grasses and trees.
  - (d) Phytoplankton rooted submerged hydrophytes, floating hydrophytes, reed swamp, sedges, meadow and trees.

- (3) During the process of ecological succession the changes that take place in communities are
- (a) Orderly and sequential
  - (b) Random
  - (c) Very quick
  - (d) Not influenced by the physical environment.
- (4) As the number of individuals of the predatory species increases, the prey population.
- (a) Increases.
  - (b) First increases, and then begins to decrease.
  - (c) Stabilizes.
  - (d) Decreases.
- (5) The correct sequence of plants in a hydrosere is
- (a) Oak → Lantana → Volvox → Hydrilla → Pistia → Scirpus
  - (b) Oak → Lantana → Scirpus → Pistia → Hydrilla → Volvox
  - (c) Volvox → Hydrilla → Pistia → Scirpus → Lantana → Oak
  - (d) Pistia → Volvox → Scirpus → Hydrilla → Oak → Lantana
- (6) What amount of energy a herbivore stores after feeding on green plants?
- (a) 10%
  - (b) 20%
  - (c) 30%
  - (d) 40%
- (7) Which of the following is not considered a population?
- (a) The ginkgo trees (*Ginkgo biloba*) in New York City
  - (b) The birds in your hometown
  - (c) The human inhabitants of Pennsylvania
  - (d) The grizzly bears (*Ursus arctos*) of Alaska

- (8) The environment protection Act.(India) Came into force on
- (a) 19 November 1986      (b) 29 November 1974
- (c) 21 November 1972      (d) 9 November 1968
- (9) Keystone species in an ecosystem are those
- (a) Present is maximum number
- (b) That are not frequent
- (c) Attaining a large biomass
- (d) Contributing to ecosystem properties
- (10) Which of the following representations shows the pyramid of numbers in a forest ecosystem?



- (a) D      (b) A
- (c) B      (d) C
- (11) Which one of the following is considered as pioneer community in xerarch ?
- (a) Annual herb      (b) perennial herb
- (c) Scrub stage      (d) forest stage
- (e) lichen

- (12) An association of individuals of different species living in the same habitat and having functional interactions is
- (a) Ecosystem (b) Population  
(c) Ecologic niche (d) Biotic community
- (13) Match column I (Indian forest types) with column II (dominant tree genera) and choose the correct option

Column I		Column II	
A	Tropical rain forest	1.	Hopes
B	Tropical deciduous forest	2.	Shores
C	Temperate broad leaf forest	3.	Quercus
D	Temperate coniferous forest	4.	Picea

- (a) A-1, B-2, C-3, D-4 (b) A-2, B-1, C-4, D-3  
(c) A-3, B-2, C-1, D-4 (d) A-1, B-2, C-4, D-3  
(e) A-4, B-3, C-2, D-1
- (14) Assertion : (A) Decomposers may be excluded from the food chains.

**Reason :** (R) They act at all tropic levels of a food chain.

- (a) If both A and R are true and R is the correct explanation of A.  
(b) If both A and R are true but R is not the correct explanation of A.  
(c) If A is true but R is false.  
(d) If both A and R are false.

- (15) Which one of the following pairs is mismatched?
- (a) Tundra: permafrost
  - (b) Savannah: acacia trees
  - (c) Prairie : epiphytes
  - (d) Coniferous forest : evergreen trees
- (16) Niche of a species is
- (a) Place of living
  - (b) Specific functions
  - (c) Habitat and specific functions
  - (d) none of these.
- (17) Biotic factors refer to
- (a) Gases produced by industries
  - (b) Nutrient-deficient soils
  - (c) Living organisms
  - (d) Fossil fuel.
- (18) Which of the following is an ecosystem service provided by a natural ecosystem?
- (a) Cycling of nutrients
  - (b) Prevention of soil erosion
  - (c) Pollutant absorption and reduction of the threat of global warming
  - (d) All of the above
- (19) Deserts, grasslands, forests and tundra are examples of
- (a) Biomes
  - (b) Biogeographical regions
  - (c) Ecosystems
  - (d) Biospheres

(20) Assertion : (A) Mosses squeeze out the lichens in primary ecological succession.

**Reason :** (R) Being taller and gregarious, the mosses kill the lichens with their shade.

- (a) If both A and R are true and R is the correct explanation of A.
- (b) If both A and R are true but R is not the correct explanation of A.
- (c) If A is true but R is false.
- (d) If both A and R are false.

**2 (a) Give the Answer in short : (any three) 6**

- (1) Explain the roles of various organizations for environmental education.
- (2) Define: Ecad, Vegetation and Flora
- (3) Explain: ecological factors.
- (4) Describe "Fidelity" as a synthetic character of community.
- (5) Explain the structure of plant community.
- (6) Describe the Shelford's law of tolerance.

**(b) Give the Answer in brief : (any three) 9**

- (1) Write a note on biological clock
- (2) Explain: forest ecosystem.
- (3) Describe: Reed-swamp stage and Sedge-meadow stage.
- (4) Write short note: pond ecosystem.
- (5) Explain the theory of population dynamics.
- (6) Discuss the causes of succession.

(c) Describe in detail : **(any two)** **10**

- (1) Briefly discuss the food chain in ecosystem.
- (2) Explain the Y – shaped energy flow model
- (3) Briefly state the basic concept of ecology.
- (4) Describe the Methods of ecological studies  
Description.
- (5) Describe Raunkiaer's life form classes of plant  
community.

**3** (a) Give the Answer in short : **(any three)** **6**

- (1) Give the general objectives of MAB (Man and  
Biosphere Programme)
- (2) Write definition: Density and frequency
- (3) Explain -- ecological efficiency?
- (4) Discuss the Liebig's law of the minimum.
- (5) Describe: natality.
- (6) Write short note: Ecological niche.

(b) Give the Answer: **(any three)** **9**

- (1) State only the name of any six Act / Rules / Laws  
for environment protection.
- (2) Explain the principle of limiting factors.
- (3) Give the short note on GPS
- (4) Describe the process of primary succession.
- (5) Write a note on Xero-sere Description.
- (6) Discuss – "Composition" as a character of a  
community.

(c) Give the Answer in brief : **(any two)**

**10**

- (1) Describe the sampling units as a method of study of community.
- (2) Explain the Savanna biomes.
- (3) Describe the general laws for environment in India.
- (4) Describe: Aquatic succession.
- (5) Discuss the single channel energy flow models in ecosystem.

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