

2018

ZOOLOGY

ZOO-101

ECOLOGY, ENVIRONMENTAL BIOLOGY

Full Mark : 80

Time : 3 Hours

The figures in the margin indicates full marks for the questions :

I. Multiple choice questions (any eight) 1 x 8 = 8

I. The ecological niche of an organism denotes

- a) the habit of an organism
- b) its structure and feeding habits
- c) its status with a particular community
- d) the climatic factors of an organism

II. Which of the following can contribute to density-dependent regulation of populations?

- a) removal of toxic waste by decomposers
- b) floods
- c) earthquakes
- d) intraspecific competition for nutrients

III. Bill owns a large chemical corporation that has received media attention for the illegal dumping of toxic waste. Bill recently hired a public relations firm to design an advertising campaign that would project an "environmentally friendly" image of his corporation. What activity is Bill engaging in?

- a) environmentalism
- b) green-washing
- c) dramaturgy
- d) ecomedia

IV. Which of the following does not tend to reduce predator-prey cycles?

- a) crowding effects in the predator

- b) dispersal between patches with asynchronous dynamics
- c) time-delayed response
- d) crowding effects in the prey

V. IPCC stands for:

- a) Intergovernmental Panel for Climate Change.
- b) Intragovernmental Panel of Climate Change.
- c) Intergovernmental Panel of Climate Change.
- d) Intragovernmental Panel for Climate Change

VI. Insolation means

- a) Incoming solar radiation or energy from the Sun that reaches to the Earth is known as insolation.
- b) The incoming solar radiation or energy from the Sun that reaches to the atmosphere.
- c) The incoming solar radiation or energy from the Sun that reaches to the troposphere.
- d) The incoming solar radiation or energy from the Sun that reaches to the stratosphere.

VII. Are the immediate dangers associated with global warming?

- a) Melting glaciers and permafrost resulting in elevated sea levels.
- b) Changing patterns of rainfall, new flood plains and dry regions.
- c) Increases in waterborne diseases and diseases transmitted by insects
- d) All the above.

VIII. Which of the following statement is correct?

- a) Different populations of the same species will be consistently *r*- or *k*-selected
- b) *r*-selection occurs in populations whose densities are very near the carrying capacity
- c) *r*- and *k*- selection are two extremes of a range of life history strategies
- d) *K*-selection operates in populations where populations fluctuate well below the carrying capacity

IX. Which of the following statement is correct?

- a) Nitrification is the reduction of nitrates into nitrogen gas.

- b) Denitrification is the process by which ammonium ion is converted into nitrite and nitrate.
- c) Ammonification involves the decomposition of organic nitrogen to ammonium ions.
- d) none of the above statement is true.

2. Answer the following short questions (any five) $2 \times 5 = 10$

- a) What is carrying capacity?
- b) What is a food web and how it is different from food chain?
- c) What is a survivorship curve?
- d) What is bioinvasion?
- e) What do you understand by global warming?
- f) What is ecoterrorism?

3. Answer the following questions (any four) $5 \times 4 = 20$

- a) What do you understand by resource partitioning and character displacement?
- b) What is habitat fragmentation?
- c) What is Ozone layer?
- d) Write effect about Albedo.
- e) What is Aerosol?

4. Answer the following long type questions (any two) $9 \times 2 = 18$

- a) What are the different salient features of aquatic ecosystem? 9
- b) Write about the causes and consequences of water pollution. $4+5=9$
- c) Write about the genetic basis of the biological clock in mammals 9

5. Answer the following very long type questions (any two)

$12 \times 2 = 24$

- a) What is ecological succession? Write stepwise method of formation of a climax community. $2 + 10 = 12$
- b) Name the Bio-geographic zones of India. What do you understand by Hotspots of Biodiversity? Name the hotspots present in India. What is genetic diversity? $5 + 3 + 2 + 2 = 12$

c) What is the master clock? Does the body makes and keeps its own circadian rhythms? Do circadian rhythms affect body function and health?

$$4 + 4 + 4 = 12$$
