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BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

ORGANISMS AND POPULATIONS

Illustrative Questions

1. Why is thermoregulation best seen in larger animals than in smaller ones?

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2. Why is intraspecific competition more severe than interspecific competition?

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3. Why do cold-blooded animals have no fat layer under their skin?

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4. Why do people living at higher altitudes have higher lung capacity and more red blood corpuscles?

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5. Why do many mangrove plants possess high level of organic solutes?

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6. In any environment, growth of a population begins with a lag phase. Why?

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7. What is the role of subcutaneous fat, called blubber in whales and seals?

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8. Most living organisms cannot survive at temperatures above 45° How are some microbes able to live in habitats with temperatures exceeding 100°

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9. If a population growing exponentiatly, doubles in size in 3 years, what is the intrinsic rate of increase (r) of the population?

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10. An orchid plant is growing on the branch of mango tree. How do you describe the interaction between orchid and mango tree?

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11. What is the ecological principle behind the biological control method of managing pests?

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12. Why are coral reefs not found in the regions from West Bengal to Andhra Pradesh but are found in Tamil Nadu and on the east coast of India?

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13. Define heliophytes and sciophytes. Name a plant from your locality that is either heliophyte or sciophyte

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14. Why do submerged plants receive weaker illumination than exposed floating plants in a lake?

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15. What is a tree line?

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16. Define 'zero population growth rate'. Draw an age pyramid for the same.

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17. Why is it that no population can live alone in nature?

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18. Why are certain plants insectivorous in nature?

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19. Why do bacteria not mulliply well in the soil although they are pathogenic to humans?

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20. Why is periodic exposure of plants to low temperature beneficial?

21. Why is population not uniform in any country ?

22. The future of human population is difficult to predict. Why?

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23. Why do birds and mammal not hibernate during winter as is seen in most animals?

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24. Why do trees of wet tropical forests have broad leaves?

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25. Why do deserts have succulant plants?

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Practice Questions Very Short Answer Type Questions

1. Mention two types of competition

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2. Give two examples of commensalism.

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3. Write the equation for the Verhulst-Pearl logistic growth of population.

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4. When in India was first census carried out?

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5. Name two predatory plants.

Watch Video Solution

6. How was Opuntia brought under control in Australia?

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7. Name the most thickly populated and least populous states of India.

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8. Which union territory has the highest literacy rate?

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9. When did the Census Act came into existence?

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10. What is soil profile?

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11. What is loam soil?

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12. What is soil texture?

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13. Which form of water in soil is available to plants?

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14. What is benthic zone?

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15. What are the two primary requirements of a parasite from its host?

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16. Write down the most Significant adaptation of hydrophytes

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17. What interaction is shown by epiphytic plants?

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18. Rearrange the following levels in their correct organisational sequence:

Landscape, Organism, Ecosystem, Population, Biosphere.

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Practice Questions Short Answer Type I Questions

1. Give the formula for the change in population size.

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2. In what ways do the predators species get benefit from their prey?

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3. Name some defence mechanisms in plants against herbivory.

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4. List the different zones of an aquatic body.

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5. Name the type of interaction between each of the following:

(a) Brids and cattle

(b) Algae and fungus

(c) Plasmodium and humans

(d) Termites and flagellates

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6. Give one similarity and one difference between protocooperation and mutualism

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7. $\frac{dN}{dt} = rN\left(1 - \frac{N}{K}\right)$ What does the following notations represent ?

(i) dN/ dt (ii) r (iii) N (iv) K

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8. Why is it believed that no two species can occupy exactly the same niche?

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9. Define predation

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10. State Gause's Competitive Exclusion Principle.

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11. If a certain mass of gas is made to undergo separately adiabatic and isothermal

expansions to the same pressure, starting form the same initial conditions of temperature and pressure, then, as compared to that of isothermal expansion, in the case of adiabatic expansion, the final

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12. $\frac{dN}{dt} = rN$

How does the increase and decrease in the value of 'r' affect the population size.

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13. Certain species of wasps are seen frequently visiting flowering fig trees. What type of interaction is seen between them and why?

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14. If 8 invididuals in a laboratory population of 80 fruit flies died in a week, then what would be the death rate for population for the said period ?

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15. In a pond there were 20 Hydrilla plants. Through reproduction ID new Hydrilla plants were added in a year. Calculate the birth rate of population.

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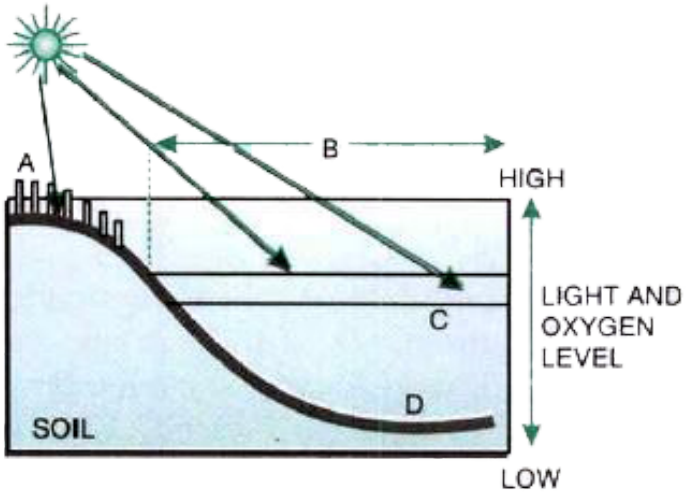
16. Label the aquatic zones in the given picture



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Practice Questions Short Answer Type Ii Questions

1. Dust seeds are characteristic of some

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2. Explain j-shaped pattern of population growth.

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3. Differentiate between

Dendrons and Axon

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4. What are various types of parasites?

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5. Define the role of temperature on organisms

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6. Explain the following terms:

(a) Environmental resistance

(b) Natality rate

(c) Exponential phase

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7. What is the role of bacteria inhabiting human colon. Which type of relationship does it show with humans?

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8. What is protocooperation? Give some examples.

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9. Define intrinsic rate of natural increase in relation to environmental resistance.

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10. Describe briefly the various light zones of a deep lake.

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11. How are hydrophytes adapted to aquatic mode of life ?

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12. Name the topographic factors and describe them briefly.

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13. Name two basic types of competition found amongst organisms. Which one of these is more intense and why?

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14. Name and explain any three adaptations in mangroves to the condition prevailing in Sunderbans

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15. a) What are tropical rainforests?

(b) Name any two dominant plant species of such forests in India.

(c) Why is soil in tropical deciduous forests richer in nutrients than in tropical rainforests?

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16. What does S-shaped pattern of population growth represent? How is j-shaped pattern different from it and why?

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17. How are ephemeral plants adapted to withstand hot and dry environment? Explain

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18. Define:

(a) Habitat and ecological niche

(b) Four characteristics of biotic community

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Practice Questions Long Answer Type Questions

1. What is soil profile?

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2. How are plants adapted to water scarcity?

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3. Discuss various biotic factors of environment.

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4. Write a note on biotic community

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5. How does light influence plants and animals?

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6. Write short notes on:

(a) Concept of limiting factors

(b) Edaphic factors

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7. In how many groups, in relation to water, are plants divided? Explain in brief.

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8. Based on water retaining capacity of soil, classify different forms of water present in the soil

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9. Write an essay on 'temperature as an ecofactor'.

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10. Write an essay on abiotic factors.

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11. Enumerate different factors which constitute physical environment.

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12. Describe what is an environment

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13. What do you understand by interaction of ecological factors?

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14. Describe briefly the biological effects of light on

(a) Pigmentation (b) Locomotion

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15. 'Human population is determined more of socioeconomic factors than biological factors'. Justify the statement.

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16. On investigation, the following data was obtained regarding population of rats in a barn:

Average natality =500 per year,

Average mortality = 480 per year,

Immigration = 25 per year,

Emigration = 45 per year

Indicate whether the population is increasing or decreasing? If at the start of investigation there were 100 rats, how many would there be at the end of ten years?

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17. Describe the mechanism of salt tolerance in plants.

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18. Describe the special adaptation of xerophytes with respect to root system, stem and leaves

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Previous Years Board Paper Questions Very Short Answer Type Questions

1. Define zero population growth

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2. Explain exponential population growth.

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3. Give a scientific term for the study of human population covering all aspects and parameters

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4. Give one significant contribution Mishra

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5. Define carrying capacity

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Previous Years Board Paper Questions Short Answer Type I Questions

1. Define :

(a) Stenothermal organisms

(b) Niche

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Previous Years Board Paper Questions Long Answer Type I Questions

1. What do you understand by the term population growth? Give three ways of discouraging population growth

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2. State four causes and four consequences of population growth

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Review Questions

1. Give one significant difference between each of the following

A. Intraspecific and Interspecific interaction

B. Commensalism and Mutualism

C. Holoparasites and Hemiparasites

D. Heliophytes and Sciophytes

Answer:

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2. Each of the following questions/statements have four suggested answers. Rewrite the correct answer in each case:

The chemical substance which is extracted from opium plant is naturally produced in plant for

A. Defence against grazers

B. Insect pollination

C. Sticking pollen on stigma

D. Sticking pollen on stigma

Answer:

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3. Each of the following questions/statements have four suggested answers. Rewrite the correct answer in each case:

Population comprises

A. A group of organisms of same species

B. Many groups of different species

C. A group of organisms in same habitat

D. Self-sustained unit in ecosystem

Answer:

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4. Each of the following questions/statements have four suggested answers. Rewrite the correct answer in each case:

This is not a trophic level in an ecosystem.

A. Plants

B. Animals

C. Decomposers

D. Water

Answer:

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5. Each of the following questions/statements have four suggested answers. Rewrite the correct answer in each case:

This type of interaction is beneficial to both individuals

A. Mutualism

B. Commensalism

C. Scavenging

D. Amensalism

Answer:

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6. Mention one significant function of the following:

A. Keytone species

B. Predation

C. Scavenging

D. Migration

Answer:

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7. State the best known contribution of:

(i) Crombie

(ii) Connel

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8. Expand the following:

Ectoparasite

Endoparasite

Epiphytes

Scavenger

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9. Describe the significance of study of age distribution in population

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10. What is commensalism' Explain with the help of an example.

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11. What would happen if all the parasites of a community are eliminated artificially? Can scavengers do the job of predators and parasites?

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Competition Corner Objective Type Questions

1. Functional aspect of a species with reference to its place of occurrence is called

A. Ecology

B. Environment

C. Ecological niche

D. Species

Answer: C

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2. Sunken stoma occur in

A. Xerophytes

B. Hydrophytes

C. Mesophytes

D. Opsanophytes

Answer: A

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3. Niche overlap is

A. Mutualism between two species

B. Active cooperation between two species

C. Two different parasites on same food

D. Sharing resources between two species

Answer: D

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4. Annual migration does not occur in

A. Arctic tern

B. Salamander

C. Salmon

D. Siberian crane

Answer: B

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5. Excessive aerenchyma is characteristic feature of

A. Heliophytes

B. Xerophytes

C. Mesophytes

D. Hydrophytes

Answer: D

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6. Which plant is found in mangrove zone?

A. Rhizophora

B. Acacia

C. Pinus

D. Tectona grandis

Answer: A

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7. Soil transported by air is

A. Alluvial

B. Glacial

C. Colluvial

D. Eolian

Answer: D

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8. Warm-blooded animals of cold climate have small extremities. This was stated by

A. Bergman

B. Gloger

C. Dollo

D. Allen

Answer: D

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9. Praying mantis is a good example of

A. Camouflage

B. Mullerian mimicry

C. Warning calouration

D. Social insect

Answer: A

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10. Exponential population growth is

A. $dN/dt = rN$

B. $dt/dN = rN$

C. $dN/rN = dt$

D. $rN/d\ N = dt$

Answer: A

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11. Animals undergo inactive stage during winters. It is called

A. Acclimatisation

B. Hibernation

C. Aestivation

D. Adaptation

Answer: B

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12. Geometric representation of age structure is a characteristic o

A. Landscape

B. Ecosystem

C. Biotic Community

D. Population

Answer: D

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13. A high density ofelephant population in an area can result in

A. Interspecific competition

B. Intraspecific competition

C. Mutualism

D. Predation on one another

Answer: B

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14. Population of an insect species increases explosively during rainy season. It disappears at the end of the season due to

A. Death of food plants at the end of rainy season

B. J-shaped growth curve

C. Increase in predator population

D. S-shaped growth curve

Answer: A

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15. Competition results in

A. Extinction

B. Mutation

C. Lager number of niches

D. Symbiosis

Answer: C

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16. NEERI is

A. National Ethological and Ecological Research Institute

B. National Eugenics and Ecological Research Institute

C. National Ecological and Environment Research Institute

D. National Environmental Engineering Research Institute

Answer: D

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17. The interaction of species with the environment is called as

A. Community

B. Environment

C. Ecosystem

D. Autecology

Answer: D

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18. The soil, which is transported by wind is known as

A. Colluvial

B. Eolian

C. Alluvial

D. Glacial

Answer: B

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19. The size of the clay particle is less than

A. 0.02 mm

B. 0.002 mm

C. 0.2 mm

D. 2.0 mm

Answer: B

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20. What is true about the isolated small tribal population.?

A. There is a decline in population as boys marry girls only from their own tribe

B. Hereditary diseases like colour blindness do not spread in the isolated population

C. Wrestlers who develop slrong body muscle in their life time pass this

character on to their progeny.

D. There is no change in population size as they have a large gene pool

Answer: B

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21. July 11th is observed as

A. World population day

B. No tobacco day

C. World environment day

D. World health day

Answer: A

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22. Small fish get stuck near the bollom of a shark and derives its nutrition from it. This kind of association is called

A. Antibiosis

B. Commensalism

C. Predation

D. Parasitism

Answer: B

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23. A high density of tiger popdlation in an area un result in

A. Predation

B. Interspecific competition

C. Inlraspecific competition

D. Protocooperation

Answer: C

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24. Two species occupying same or overlapping area are called

A. Sympatric

B. Allopatric

C. Parapatric

D. Ring species

Answer: A

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25. The niche of a population is defined as

A. (a) Set of condition that interacts

B. (b) Place where it lives and it interactions with envirnoment

C. (c) Set of conditions and resources it uses

D. (d) Geographical area that it covers

Answer: C

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26. In commensalism

A. Both partners are harmed

B. Weaker partner is benefilled

C. Both partners are benefilled

D. None of the partners is benefilled

Answer: B

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27. What is a keystone species?

A. A species which adds up to only a small proportion of the total biomass of a community, yet has a huge impact on the community's organisation and survival.

B. A common species that has plenty of biomass, yet has a fairly low impact on the community's organisation.

C. A rare species that has minimal impact on the biomass and on other species in

the community.

D. A dominant species that constitutes a large proportion of the biomass and ~hjch affects many other species

Answer: A

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28. The inherent maximum capacity of an organism to reproduce or increase in number is called as

A. (a) Biotic potential

B. (b) Ecosystem

C. (c) Population

D. (d) Ecology

Answer: A

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29. Match the column I with column II and choose the correct option

Column I	Column II
A. Mutualism	1. Tiger and deer
B. Commensalism	2. *Cuscuta* on Cissus
C. Parasitism	3. Sucker fish and shark
D. Predation	4. Crab and sea anemone

A. (a) $\begin{matrix} A & B & C & D \\ 1 & 2 & 3 & 4 \end{matrix}$

B. (b) $\begin{matrix} A & B & C & D \\ 4 & 3 & 2 & 1 \end{matrix}$

C. (c) $\begin{matrix} A & B & C & D \\ 1 & 3 & 2 & 2 \end{matrix}$

D. (d) $\begin{matrix} A & B & C & D \\ 2 & 3 & 1 & 4 \end{matrix}$

Answer: B

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30. The change in population size at a given time interval t, is given by the expression

Nt = No+ B + I - D - E

I, B and D stand respectively for

A. Rate of immigration, mortality rate, natality rate

B. Rate of immigration, natality rate, rate of emigration

C. Mortality rate, natality rate, rate of immigration

D. Rate of immigration, natality rate, mortality rate

Answer: D

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31. For better survival of the human population, which of the following steps is most important?

A. Reduction in the use of various resources

B. Afforestation

C. Conservation of wildlife

D. Ban on mining activity

Answer: A

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32. If the strong partner is benefitted and the weak partner is damaged. It is known as

A. Predation

B. Allelopathy

C. Symbiosis

D. Commensalism

Answer: A

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33. Which one is the edaphk factor in biosphere?

A. Light

B. Temperature

C. Water

D. Soil

Answer: D

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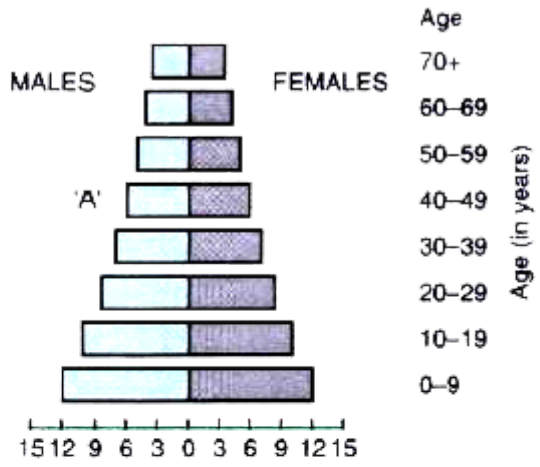
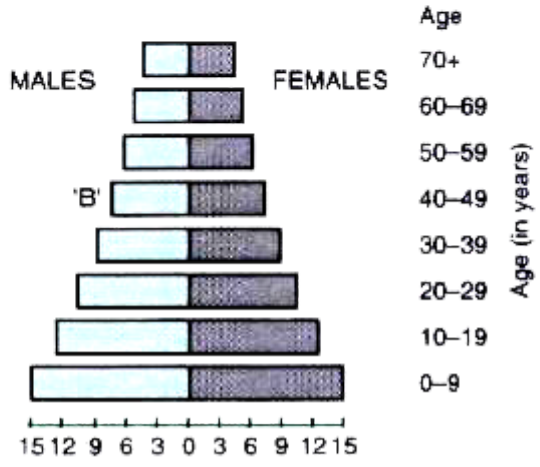
34. A country with a high rate of population growth took measures to reduce it. The figure below shows are sex pyramids of populations. A and B twenty years apart. Select the correct interpretation about them.





Interpretations

A. A' is more recent and shows slight reduction in the growth rate

B. 'B' is earlier pyramid and shows stabilised growth rate

C. B' is more recent showing that population is very young

D. 'A' is the earlier pyramid and no change has occurred in the growth rate

Answer: A

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35. An unrestricted reproductive capacity is called

A. Birth rate

B. Biotic potential

C. Carrying capacity

D. Fertility

Answer: B

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36. The growth of a population without limit at its maximal rate and also that, rates of immigration and emigration are equal, then it is called

A. Carrying capacity

B. Biotic potential

C. Positive growth

D. Negative growth

Answer: B

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37. Find odd one out, according to parasitism.

A. Lice

B. Plasmodium

C. Bedbug

D. Mite

Answer: B

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38. Ratio between mortality and natality is called

A. Population ratio

B. Vital index

C. Density eoefficienl

D. Census ratio

Answer: B

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39. Genetically adapted population to a particular habitat called

A. Ecolone

B. Ecotype

C. Biome

D. Niche

Answer: B

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40. The species of plants that play a vital role in controlling the relative abundance of other species in a community are called

A. Edge species

B. Keystone species

C. Pioneer species

D. Seral species

Answer: B

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41. Phenomenal and rapid increase of population in a short period is called

A. Natural increase

B. Population growth

C. Population explosion

D. None of the above

Answer: C

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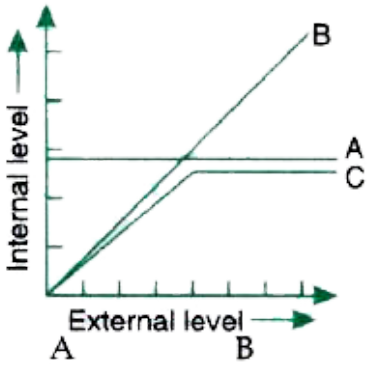
42. The given figure is a diagrammatic representation of response of organisms to abiotic factors. What do A, B and C represent respectively?



	A	B	C
(a)	Conformer	Regulator	Partial regulator
(b)	Regulator	Partial	Conformer regulator
(c)	Partial	Regulator	Conformer regulator
(d)	Regulator	Conformer	Partial regulator

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43. Plants grown on sandy soil, are grouped under

A. Lithophytes

B. Psammophytes

C. Hydrophytes

D. Xerophytes

Answer: B

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44. Which one of the following is one of the characteristics of a biological community?

A. Stratification

B. Natality

C. Morlality

D. Sex ratio

Answer: A

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45. Barnacles growing on the back of whale is an example for

A. Mutualism

B. Commensalism

C. Parasitism

D. Amensalism

Answer: B

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46. The formula of growth rate for population in a given time is

A. $dt/dN = rN$

B. $dt/rN = dN$

C. $rn/dN = dt$

D. $dN/dt = rN$

Answer: D

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47. The association of animals when both partners are benefitted is

A. Commensalism

B. Amensalism

C. Mutualism

D. Parasitism

Answer: B

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48. Mass of Living matter at a trophic level in an area at any time is called

A. Standing crop

B. Detritus

C. Humus

D. Standing state

Answer: A

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49. Of the total incident solar radiation the proportion of PAR is

A. About 70%

B. Aboul60%

C. Less than 50%

D. More than 80%

Answer: C

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50. It is much easier for a small animal to run uphill than for a large animal,because

A. Small animals have a lower O_2 requirement

B. The efficiency of muscles in large animals is less than in the small animal

C. II is easier to carry a small body weight

D. Smaller animals have a higher metabolic rate

Answer: D

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51. When does the growth rate of a population following the logistic model equal zero? The logistic model is given as $Dn/dt = Rn(1 - N/K)$.

A. When N/K equals zero.

B. When death rale is greater than birth

~re

C. When N/K is exactly one

D. When N nears the carrying capacity of the habitat

Answer: C

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52. Gause's principle of competitive exclusion slales that

A. No two species can occupy the same niche indefinilely for the same limiting

resources.

B. Larger organisms exclude smaller ones through compelition

C. More abundanl species will exclude Ihe less abundanl species Ihrough

D. Competition for the same resources excludes species having different food preferences

Answer: A

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Competition Corner Assertion And Reason Type Questions

1. Assertion: Census is held in India after every ten years.

Reason: Scientific study of population is called demography

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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2. Assertion: Natality potential is never realised.

Reason: Biotic potential is countered by environmental resistance

A. (a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. (b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. (c) If Assertion is true but the Reason is false

D. (d) If both Assertion and Reason are false.

Answer: A

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3. Assertion: Migration is an important factor which determines both population size and population density.

Reason: In migration, a major part of population goes from one area to another area.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: D

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4. Assertion: In sigmoid growth curve, population finally stabilises ilself.

Reason: Finally, the death rate increases than the birlh rale.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: C

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5. Assertion: The environmental resistance does not allow population growth to soar towards infinity.

Reason: The environmental resistance checks the biotic potential.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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6. Assertion: Lemmings of Tundra follow population fluctuations.

Reason: These show sudden increase in population in shorl time followed by population crash.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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7. Assertion: The heliophytes possess high chlorophyll contents and low concentration of salt and sugar.

Reason: Due to this, plants are able to grow in shade also.

A. (a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. (b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. (c) If Assertion is true but the Reason is false

D. (d) If both Assertion and Reason are false.

Answer: C

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8. Assertion: Natality rate increases both population size and population density.

Reason: Natality increases the number of individuals in an area by births.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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9. Assertion: If there is no rainfall or scanty rainfall throughout the year, then xerophytic vegetation occurs.

Reason: Amount or timings of rainfall determine the type of vegetation of an area.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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10. Assertion: Flattening of plants against ground due to wind action is called lodging.

Reason: The plants are uprooled by high wind velocity.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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11. Assertion: Soil erosion is also caused due to excessive water logging.

Reason: By slipping of large boulders from a glacier, sheet erosion is caused.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: D

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12. Assertion: Cryophytes can carry out pholosynthesis even at- $35^{\circ} C$

Reason: Some thermal algae can carry on photosynthesis even at $95^{\circ} C$

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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13. Assertion: Earth's atmosphere is about up to a height of 3000 km.

Reason: First 75 km of earth's atmosphere is called troposphere in which lightning, thunder, cloud formation occur.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: D

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14. Assertion: Breaking of rocks is called weathering.

Reason: Weathering of rocks is due to physical and chemical methods.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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15. A particle is moving along x-direction with a constant acceleration a. The particle starts from $x = x_0$ position with initial velocity u. We can define the position of the particle with time by the relation

$$x = x_0 + ut + \frac{1}{2}at^2$$

plot the position of the particle in relation with time is following situations

(i) If initial position of the particle is on negativ x-axis, initial velocity is positive and acceleration is negative.

(ii) If initial position is positive, initial velocity is negative and acceleration is positive.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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16. Assertion: One in every six persons in the world is an Indian.

Reason: In India, there are more females than males.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: C

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17. Assertion: Many hydrophytes lack roots.

Reason: Roots are used for balancing

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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18. Assertion: Aquatic plants contain aerenchyma.

Reason: Aerenchyma keeps aquatic plants afloat.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: A

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19. Assertion: Cold-blooded animals have no fat layer.

Reason: Cold-blooded animals use their fat for metabolic processes during hibernation.

A. (a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. (b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. (c) If Assertion is true but the Reason is false

D. (d) If both Assertion and Reason are false.

Answer: A

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20. Assertion: In India, the human population is currently undergoing the lag phase.

Reason: A major portion of Indian population is still below poverty line.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: D

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21. Assertion: Animals adopt different strategies to survive in hostile environment.

Reason: Praying mantis is green in colour which merges with plant foliage.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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22. Assertion: Age, sex, structure of human popuJation in France and Sweden forms a steep pyramid.

Reason: To countries like Sudan and Lndia, the population is increasing at a rapid rate.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false

D. If both Assertion and Reason are false.

Answer: B

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