BIOLOGY

BOOKS - OSWAAL BIOLOGY (KANNADA ENGLISH)

ORGANISMS AND POPUIATIONS

Topic 1 Very Short Answer Type Questions

1. "In animals, the organism, if unable to migrate, might avoid the stress by escaping in

time". Justify the statement by giving one example.

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2. Species that tolerate wide range of salinity are called___.

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3. If a marine fish is placed in fresh water aquarium, will the fish be able to survive?

Why?

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4. What is homeostasis?

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5. Define aestivation.

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6. Define the term, 'Ecology'.

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7. What is the main reason for creation of seasons?

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8. Mention the factors that account for the formation of major biomes in the earth.

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9. Give an example for biome.

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10. Why light is considered as an important abiotic factor for animals?

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11. Define regulate.

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12. Small animals are rarely found in Polar regions .Why?

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13. What is the immigration?

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14. What is dormancy?

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15. What is hibernation?

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16. What is diapause?

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17. What is adaptation?

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18. State Allen's rule.

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19. Give an example for Allen's rule.

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20. Why the seals of polar aquatic seas possess a thick layer of fat below the skin?

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21. Why body develops nausea, fatigue and heart palpitations when a person move to high altitude (>3,500 meter)?

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22. Mention any one behavioral adaptation observed in animals.

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23. Name the group of organisms that exhibit diapause.

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24. Why thermoregulation is more effectively achieved in larger animals than in smaller ones?

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25. Write what do phytophagous insects feed on?

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26. Fresh water animals are unable to survive for long in sea water. Give reason.

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Topic 1 Short Answer Type Questions I

1. Most living organisms cannot survive at temperatures above 45°c. How are some microbes able to live in habitats with temperature beyond 100°c?

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

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3. In a sea shore, the benthic animals live in sandy, muddy and rocky substrata and accordingly developed the following adaptations. Find the suitable substratum

against each adaptation.

(a) Burrowing _____

(b) Building cubes _____

(c) Holdfasts /peduncle _____

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4. Write a note on temperature as abiotic factor.

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5. Write a note on water as abiotic factor.

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6. Explain the mechanism by which humans regulate their body temperature.

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7. Write a note on conformers.

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8. Write a note on migration.

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9. Write a note on suspend.

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10. List the adaptation seen in animals for cold climate.

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11. "Desert lizards are conformer hence they cope with the stressful environment by behavioral adaptations". How?

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12. How does our body overcome altitude sickness?

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13. Kangaroo rats can survive in the absence of an external source of water. How do they adapt themselves to such conditions?

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14. Small animals are rarely found in Polar regions .Why?

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15. An organism has to overcome stressful condition for a limited period of time.

Which strategies can it adopt to do so?

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16. Why the small birds like humming birds are not · found in Polar Regions?

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17. When and why do some animals like snails undergo aestivations?

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18. What are the four levels of biological organisation with which ecology basically deals?

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19. Define Organisms, population, communities and biomes.

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20. What are the four ways through which the living organisms respond to abiotic factors?

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Topic 1 Short Answer Type Questions Ii

1. Write a note on the importance of light as abiotic factor for plants.

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2. Write a note on soil as abiotic factor.

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3. "The conformer had not evolved to become regulators". Justify the statement.

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4. Describe the adaptation of desert plants.

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5. How behavioural responses are achieved by animals during variation in the environment?

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6. How do organisms like fungi, zooplanktons and bears overcome the temporary short-lived climatic stressful conditions? Explain.

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7. Explain different strategies developed by animals to escape in time.

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Topic 1 Long Answer Type Questions

1. Explain physiological adaptation to high altitude by humans. How the bodies solve the problem?

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2. Explain different adaptation of plants and animals for dry conditions.

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3. Some organisms suspend their metabolic activities to survive in unfavourable conditions. Explain with the help of four examples.

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Topic 2 Very Short Answer Type Questions

1. State Gause's 'Competitive Exclusion Principle'.

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2. Define mortality.

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3. Define population.

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4. An orchid plant is growing on a mango tree.

How do you describe the interaction between

the orchid and the mango tree?

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5. What is Mycorrhiza?

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6. What is commensalism?

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7. What is an age pyramid?

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8. What does the age pyramid reflects?

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9. What is population density? .

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10. What is the letter used to designate population density?

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11. List the methods used to estimate population size during tiger census recently.

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12. Define natality.

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13. Define birth rate.

Watch Video Solution

14. Define death rate.

Watch Video Solution

15. Define imbibition.

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16. What is the emigration?

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17. Mention the significance of the study of population ecology.

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18. Although total number is generally the most appropriate measure of population density, it is in some cases either meaningless or difficult to determine. What is the alternative method?

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19. If N is the population density at time t, mention the formula to show its density at timet + 1.

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20. Mention the formula to express exponential growth.

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21. In the formula $dN/dt = rN$, $'r$ represents what?

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22. Write the equation for describing the Verhulst- Pearl Logistic Growth

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23. What is carrying capacity?

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24. What are the factors that govern of logistic growth?

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25. Define the term "competition" in terms of ecological interaction.

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26. "Totally unrelated species could also compete for the same resource". Give an example.

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27. Resources need not be limiting for competition to occur". Give an example.

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28. When resources are limited competitively superior species will eventually eliminate the other species". Substantiate this with an example.

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29. What is competitive release?

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30. What is 'resource partitioning'?

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31. Give an example for commensalism.

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32. What is mutualism?

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33. Give an example for mutualism.

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34. Give an example for "tight one-to-one relationship with the pollinator" in mutualism.

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35. What is Amenalism ?

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36. How the highly invasive prickly pear cactus was controlled in Australia in early 1920's?

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37. In mutualism, how the two different organisms in mycorrhizae get benefited?

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38. Cattle or goats never graze on weeds of calotropis. Give reasons.

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39. Two closely related species competing for the same resources cannot co-exist indefinitely'. State the principle which supports this phenomenon.

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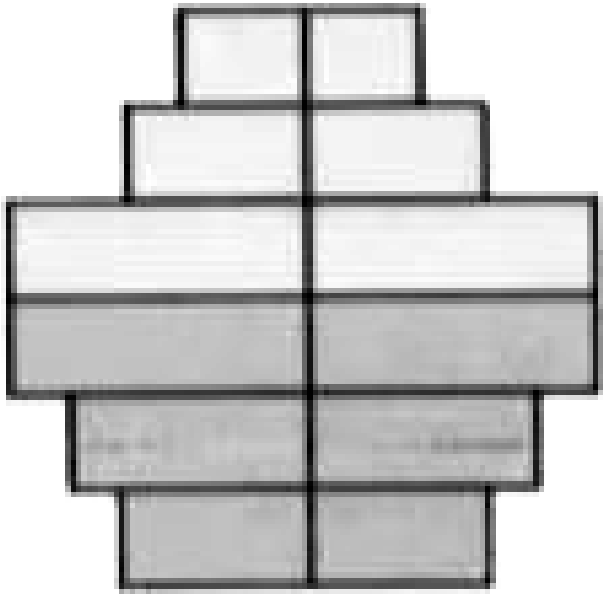
40. What type of growth status the following pyramid represents.



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41. With which population growth model is the Verhulst Pearl equation associated?

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42. Calculate the death rate if 6 individuals in a laboratory population of 60 fruit flies died during a particular week.

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43. What is sex ratio?

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44. What would be the growth pattern, when the resources are unlimited?

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45. Give a suitable example for commensalism.

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Topic 2 Short Answer Type Questions I

1. What is brood parasitism? Explain with the help of an example.

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2. What is a tree line?

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3. Is it Possible to achieve 'zero population growth rate? If yes, what kind of age pyramid is obtained?

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4. Mention any two attributes that as individual organism does not have but shown by a population.

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5. List the methods used to estimate population size.

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6. In a pond there are 20 lotus plants last year and through reproduction 8 new plants are added, taking the current population to 28, calculate the birth rate.

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7. Give the diagrammatic representation of an expanding age pyramid.

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8. Give the diagrammatic representation of a stable age pyramid.

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9. Give the diagrammatic representation of a declining age pyramid.

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10. What are the observations one can make from the study of population?

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11. Mention the four basic processes, because of which density of a population in a given habitat during a given period fluctuates.

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12. Give the 'r" value (intrinsic rate of natural increase) value for Humans (in 1981) and Norway rat.

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13. Mention the characteristic of exponential growth.

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14. If in a population of size N, the birth rates represented as b and death rates as d,then derive the formula to calculate the increase or decrease in N during a unit time period t (dN/dt).

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15. Explain the characteristic features of a population showing logistic growth.

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16. Explain Connell's experiment.

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17. What is 'resource partitioning'?

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18. Predators also help in maintaining species diversity in a community, by reducing the

intensity of competition among competing prey species". Give an example.

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19. How monarch butterfly survives from its predator?

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20. Why do clown fish and sea anemone pair up? What is this relationship called?

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21. Why herbivores are considered similar to predators in the ecological context? Explain.

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22. How do the increase and the decrease in the value of 'r' affect the population size?

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23. What does S-Shaped pattern of population growth represent? How is J-shaped pattern different from it and why?

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Topic 2 Short Answer Type Questions Ii

1. In an aquarium two herbivorous species of fish are living together and feeding on phytoplanktons. As per the Gausses principle, one of the species is to be eliminated in due

course of time, but both are surviving. How? And what possibly happened to both the species?

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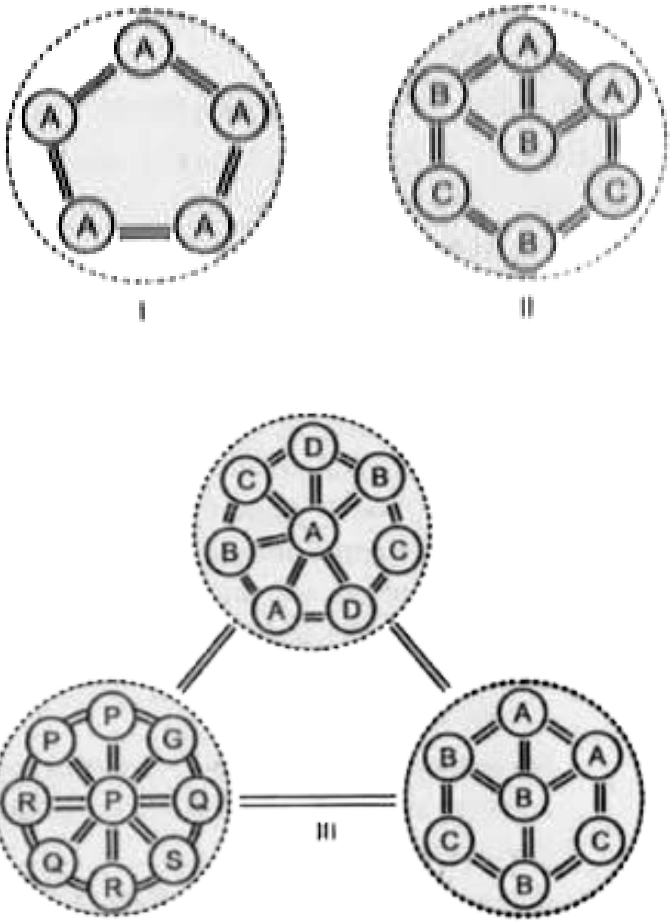
2. Comment on the following diagrams:

A, B, C. D, G, P, Q, R, S are species



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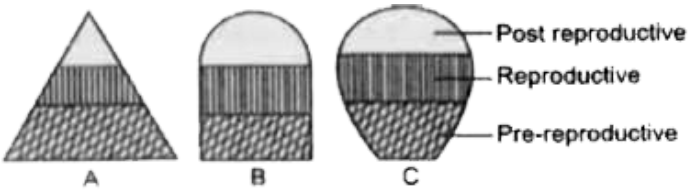
3. The following diagrams are the age pyramids of different populations.

Comment on the status of these populations .



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4. What is the significant of age pyramids? List the different types of age pyramids.

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5. Population size, more technically called population density (designated as N), need not necessarily be measured in numbers only. Explain the reasons for this with examples.

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6. In the equation, $dN/dt = rN(K - N/N), r, K, N$ stand for what?

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7. Differentiate between exponential growth and logistic growth.

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8. List the defense developed by prey against predator in animal communities.

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9. How will you measure population density in following cases?

(a) Fish in a lake

(b) Tiger census in a national park

(c) Single huge banyan tree with large canopy.

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10. List the characteristic features of endoparasites.

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Topic 2 Long Answer Type Questions

1. Name the interaction in each of the following:

(a) Ascaris worms living in the intestine of Human

(b) Wasp pollinating fig inflorescence

(c) Clown fish living among the tentacles of Sea anemone

(d) Disappearance of smaller barnacles when Balanus dominated in the coast of Scotland.

(e) Five closely related species of warblers living on the same tree.

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2. Mention the characteristic of exponential growth.

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3. Explain the characteristic features of a population showing logistic growth.

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4. What is predation? Explain the characteristic of predation.

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5. Describe the adaptation of parasites.

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6. Draw and explain a logistic curve for a population of density (N) at time (t) whose 'intrinsic rate of natural increase is (r) and carrying capacity is (k).

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7. Differentiate between the following inter-specific interactions in a population :

(i) Mutualism and Competition

(ii) Commensalism and Amensalism

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8. Species facing competition might evolve mechanism that promotes coexistence rather than exclusion. Justify this statement in light of Gause' s competitive exclusion principle, citing suitable examples.

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9. Name the type of interactions seen in each of the following examples:

(a) Ascaris worms living in the intestine of Human.

(b) Wasp pollinating fig inflorescence.

(c) Clown fish living among the tentacles of Sea anemone.

(d) Mycorrhizae living on the roots of higher plants.

(e) Orchid growing on the branch of a Mango tree.

(f) Disappearance of smaller barnacles when Balanus dominated in the coast of Scotland.

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10. State two important defense mechanisms in plants against herbivory, with an example each.

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Topic 2 Multiple Choice Questions

1. Autecology is the :

A. Relation of a population to its environment.

B. Relation of an individual to its environment.

C. Relation of a community to its environment.

D. Relation of a biome to its environment.

Answer: C

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2. Ecotone is :

A. A polluted area.

B. The bottom of a lake.

C. A zone of transition between two communities.

D. A zone of developing community.

Answer: C

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3. Biosphere is :

A. A component in the ecosystem.

B. Composed of the plants present in the soil.

C. Life in the outer space.

D. Composed of all living organisms present on earth which interact with the physical environment.

Answer: D

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4. Ecological niche is :

A. The surface area of the ocean.

B. An ecologically adapted zone.

C. The physical position and functional role of a species within the community.

D. Formed of all plants and animals living at the bottom of a lake.

Answer: C

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5. According to Allen's Rule, the mammals from colder climates have :

A. Shorter ears and longer limbs.

B. Longer ears and shorter limbs.

C. Longer ears and longer limbs.

D. Shorter ears and shorter limbs.

Answer: D

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6. Salt concentration (Salinity) of the sea measured in parts per thousand is :

A. $10 - 15$

B. $30 - 70$

C. $0 - 5$

D. $30 - 35$

Answer: B

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7. Formation of tropical forests needs mean annual temperature and mean annual precipitation as :

A. 18 - 25°C and 150 - 400 cm

B. 5-15°C and 50-100 cm

C. 30 - 50°C and 100 - 150 cm

D. 5 - 15°C and 100- 200 cm

Answer: C

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8. Which of the following forest plants controls the light conditions at the ground?

A. Lianas and climbers.

B. Shrubs.

C. Tall trees.

D. Herbs.

Answer: C

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9. What will happen to a well growing herbaceous plant in the forest if it is trans planted outside the forest in a park?

A. It will grow normally.

B. It will grow well because it is planted in the same locality.

C. It may not survive because of change in its micro climate.

D. It grows very well because the plant gets more sunlight.

Answer: C

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10. If a population of 50 Paramoecium present in a pool increases to 150 after an hour, what would be the growth rate of population?

A. 50 per hour

B. 200 per hour

C. 5 per hour

D. 100 per hour

Answer: B

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11. What would be the percent growth or birth rate per individual per hour for the same population mentioned in the previous question (Question 10)?

A. 100

B. 200

C. 50

D. 150

Answer: A

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12. A population has more young individuals compared to the older individuals. What

would be 'the status of the population after some years?

A. It will decline.

B. It will stabilise.

C. It will increase.

D. It will first decline and then stabilise.

Answer: B

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13. What parameters are used for tiger census in our country's national parks and sanctuaries?

A. Pug marks only.

B. Pug marks and faecal pellets.

C. Faecal pellets only.

D. Actual head counts.

Answer: B

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14. Which of the following would necessarily decrease the density of a population in a given habitat?

A. Natality and mortality.

B. Immigration and emigration.

C. Mortality and emigration.

D. Natality and immigration.

Answer: C

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15. A protozoan reproduces by binary fission. What will be the number of protozoans in its population after six generations?

A. 128

B. 24

C. 64

D. 32

Answer: A

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16. In 2005, for each of the 14 million people present in a country, 0.028 were born and 0.008 died during the year. Using exponential equation, the number of people present in 2015 is predicted as :

A. 25 millions.

B. 17 millions,

C. 20 millions.

D. 18 millions.

Answer: B

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17. Amensalism is an association between two species where:

A. One species is harmed and other is benefitted.

B. One species is harmed and other is unaffected.

C. One species is benefitted and other is unaffected.

D. Both the species are harmed.

Answer: B

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18. Lichens are the associations of

A. Bacteria and fungus.

B. Algae and bacterium.

C. Fungus and algae.

D. Fungus and virus.

Answer: C

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19. Which of the following is a partial root parasite?

A. Sandal wood.

B. Mistletoe.

C. Orobanche.

D. Ganoderma.

Answer: B

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20. Which one of the following organisms reproduces sexually only once in its life time?

A. Banana plant.

B. Mango.

C. Tomato.

D. Eucalyptus.

Answer: A

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