

Organisms and Populations

13.1 Organism and Its Environment

7. Most animals are tree dwellers in a
(a) temperate deciduous forest
(b) tropical rainforest
(c) coniferous forest
(d) thorn woodland. *(2015 Cancelled)*

8. Just as a person moving from Delhi to Shimla to escape the heat for the duration of hot summer, thousands of migratory birds from Siberia and other extremely cold northern regions move to
(a) Western Ghat
(b) Meghalaya
(c) Corbett National Park
(d) Keoladeo National Park. *(2014)*

9. Which one of the following is not a parasitic adaptation?
(a) Development of adhesive organs
(b) Loss of digestive organs
(c) Loss of reproductive capacity
(d) Loss of unnecessary sense organs
(Karnataka NEET 2013)

10. Benthic organisms are affected the most by
(a) light reaching the forest floor
(b) surface turbulence of water
(c) sediment characteristics of aquatic ecosystems
(d) water-holding capacity of soil.
(Karnataka NEET 2013)

11. People who have migrated from the planes to an area adjoining Rohtang Pass about six months back
(a) have more RBCs and their haemoglobin has a lower binding affinity to O₂
(b) are not physically fit to play games like football
(c) suffer from altitude sickness with symptoms like nausea, fatigue, etc.
(d) have the usual RBC count but their haemoglobin has very high binding affinity to O₂. *(2012)*

12. Large woody vines are more commonly found in
(a) temperate forests (b) mangroves
(c) tropical rainforests (d) alpine forests. *(2011)*

- 25.** Which one of the following pairs is mismatched?
- (a) Tundra – Permafrost
 - (b) Savanna – *Acacia* trees
 - (c) Prairie – Epiphytes
 - (d) Coniferous forest – Evergreen trees (2005)
- 26.** In which one of the following pairs is the specific characteristic of a soil not correctly matched?
- (a) Laterite – Contains aluminium compound
 - (b) Terra rosa – Most suitable for roses
 - (c) Chernozems – Richest soil in the world
 - (d) Black soil – Rich in calcium carbonate (2004)
- 27.** In which one of the following habitats does the diurnal temperature of soil surface vary most?
- (a) Shrub land (b) Forest
 - (c) Desert (d) Grassland (2004)
- 28.** What is true for individuals of same species?
- (a) Live in same niche
 - (b) Live in same habitat
 - (c) Interbreeding
 - (d) Live in different habitat (2002)
- 29.** Cause of mimicry is
- (a) concealment (b) offence
 - (c) defence (d) both (b) and (c). (2002)
- 30.** Which part of the world has a high density of organisms?
- (a) Deciduous forests (b) Tropical rainforests
 - (c) Grasslands (d) Savannah (1999)
- 31.** In desert grasslands, which type of animals are relatively more abundant?
- (a) Aquatic (b) Fossorial
 - (c) Diurnal (d) Arboreal (1998)
- 32.** Plants such as *Prosopis*, *Acacia* and *Capparis* represent examples of tropical
- (a) deciduous forests (b) evergreen forests
 - (c) grasslands (d) thorn forests. (1998)
- 33.** Which of the following communities is more vulnerable to invasion by outside animals and plants?
- (a) Temperate forests
 - (b) Oceanic island communities
 - (c) Mangroves
 - (d) Tropical evergreen forests (1998)
- 34.** During adverse season, therophytes survive by
- (a) rhizomes (b) seeds
 - (c) bulbs (d) corms (1997)
- 35.** Benthic animals are those, which
- (a) are submerged in area
 - (b) float on the sea surface
- (c) are deep dweller in sea**
- (d) are floating (free) organisms. (1996)**
- 36.** The ‘niche’ of a species is meant for
- (a) habitat and specific functions of a species
 - (b) specific place where an organism lives
 - (c) specific species function and its competitive power
 - (d) none of these. (1996)
- 37.** The animals of cold countries have relatively shorter and poorly developed ears, eyes, hairs and other phenotypic characters. This is known by which law?
- (a) Cope’s Law (b) Dollo’s Law
 - (c) Allen’s Law (d) Bergmann’s Law (1996)
- 38.** Study of inter-relationships between organisms and their environment is
- (a) ecology (b) ecosystem
 - (c) phytogeography (d) ethology. (1993)
- 39.** The sum total of the populations of the same kind of organisms constitute
- (a) colony (b) genus
 - (c) community (d) species. (1993)
- 40.** Fertility of soil is measured by its ability to
- (a) retain nutrients
 - (b) hold organic materials
 - (c) hold water
 - (d) support life. (1992)
- 41.** Soil particles determine its
- (a) texture
 - (b) field capacity
 - (c) water holding capacity
 - (d) soil flora. (1992)
- 42.** Homeostasis is
- (a) tendency of biological systems to change with change in environment
 - (b) tendency of biological systems to resist change
 - (c) disturbance of self regulatory system and natural controls
 - (d) biotic materials used in homeopathic medicines. (1991)
- 43.** Deep black soil is productive due to high proportion of
- (a) sand and zinc (b) gravel and calcium
 - (c) clay and humus (d) silt and earthworm. (1991)
- 44.** Homeostasis is
- (a) tendency to change with change in environment
 - (b) tendency to resist change
 - (c) disturbance in regulatory control
 - (d) plants and animal extracts used in homeopathy. (1991)

13.2 Populations

- 46.** Carnivorous animals lions and leopards, occupy the same niche but lions predate mostly larger animals and leopards take smaller ones. This mechanism of competition is referred to as
(a) character displacement
(b) altruism
(c) resource partitioning
(d) competitive exclusion. (*Odisha NEET 2019*)

47. Between which among the following, the relationship is not an example of commensalism?

 - (a) Orchid and the tree on which it grows
 - (b) Cattle Egret and grazing cattle
 - (c) Sea Anemone and Clown fish
 - (d) Female wasp and fig species

- 48.** Natality refers to

 - (a) death rate
 - (b) birth rate
 - (c) number of individuals leaving the habitat
 - (d) number of individuals entering a habitat.

(NEET 2018)

- 50.** In a growing population of a country,

 - (a) pre-reproductive individuals are more than the reproductive individuals
 - (b) reproductive individuals are less than the post-reproductive individuals
 - (c) reproductive and pre-reproductive individuals are equal in number
 - (d) pre-reproductive individuals are less than the reproductive individuals. (NEET 2018)

- 51.** Which one of the following population interactions is widely used in medical science for the production of antibiotics?

(a) Commensalism (b) Mutualism
(c) Parasitism (d) Amensalism

- 52.** Asymptote in a logistic growth curve is obtained when
(a) $K = N$
(b) $K \geq N$

- (c) $K < N$
 (d) the value of ' r ' approaches zero. (NEET 2017)

53. Mycorrhizae are the example of
(a) amensalism (b) antibiosis
(c) mutualism (d) fungistasis.
 (NEET 2017)

54. Which of the following is correct for r-selected species?

 - (a) Large number of progeny with small size
 - (b) Large number of progeny with large size
 - (c) Small number of progeny with small size
 - (d) Small number of progeny with large size

(NEET-II 2016)

57. 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 rate is greater than birth rate
 - (c) when N/K is exactly one
 - (d) when N nears the carrying capacity of the habitat. (NEET-I 2016)

- 58.** Gause's principle of competitive exclusion states that

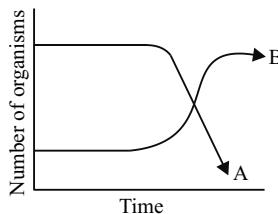
 - (a) no two species can occupy the same niche indefinitely for the same limiting resources
 - (b) larger organisms exclude smaller ones through competition
 - (c) more abundant species will exclude the less abundant species through competition
 - (d) competition for the same resources exclude species having different food preferences.

(NEET-I 2016)

- 59.** In which of the following interactions both partners are adversely affected?

(a) Parasitism (b) Mutualism
(c) Competition (d) Predation (2015)

60. The following graph depicts changes in two populations (A and B) of herbivores in a grassy field. A possible reason for these changes is that



- (a) population A produced more offspring than population B
 (b) population A consumed the members of population B
 (c) both plant populations in this habitat decreased
 (d) population B competed more successfully for food than population A. (2015 Cancelled)

61. According to Darwin, the organic evolution is due to
 (a) competition within closely related species
 (b) reduced feeding efficiency in one species due to the presence of interfering species
 (c) intraspecific competition
 (d) interspecific competition. (NEET 2013)

62. Besides paddy fields, cyanobacteria are also found inside vegetative part of
 (a) *Equisetum* (b) *Psilotum*
 (c) *Pinus* (d) *Cycas.* (NEET 2013)

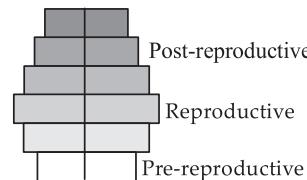
63. A sedentary sea anemone gets attached to the shell lining of hermit crab. The association is
 (a) commensalism
 (b) amensalism
 (c) ectoparasitism
 (d) symbiosis. (NEET 2013)

64. A biologist studied the population of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20 and emigration 30. The net increase in population is
 (a) 05 (b) zero
 (c) 10 (d) 15. (NEET 2013)

65. The age pyramid with broad base indicates
 (a) high percentage of old individuals
 (b) low percentage of young individuals
 (c) a stable population
 (d) high percentage of young individuals.
 (Karnataka NEET 2013)

66. *Cuscuta* is an example of
 (a) ectoparasitism (b) brood parasitism
 (c) predation (d) endoparasitism.
 (Mains 2012)

67. What type of human population is represented by the following age pyramid?



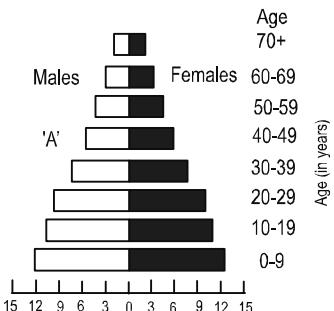
- (a) Vanishing population
 (b) Stable population
 (c) Declining population
 (d) Expanding population (2011)

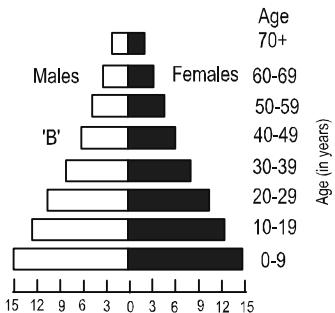
68. Which one of the following is categorised as a parasite in true sense?
 (a) The female *Anopheles* bites and sucks blood from humans.
 (b) Human fetus developing inside the uterus draws nourishment from the mother.
 (c) Head louse living on the human scalp as well as laying eggs on human hair.
 (d) The cuckoo (koel) lays its eggs in crow's nest. (2011)

69. The logistic population growth is expressed by the equation
 (a) $dt/dN = Nr \left(\frac{K-N}{K} \right)$ (b) $dN/dt = rN \left(\frac{K-N}{K} \right)$
 (c) $dN/dt = rN$ (d) $dN/dt = rN \left(\frac{N-K}{N} \right)$
 (Mains 2011)

70. Which one of the following is most appropriately defined?
 (a) Host is an organism which provides food to another organism.
 (b) Amensalism is a relationship in which one species is benefitted whereas the other is unaffected.
 (c) Predator is an organism that catches and kills other organism for food.
 (d) Parasite is an organism which always lives inside the body of other organism and may kill it.
 (Mains 2010)

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





Interpretations:

- (a) "B" is earlier pyramid and shows stabilized growth rate.
- (b) "B" is more recent showing that population is very young.
- (c) "A" is the earlier pyramid and no change has occurred in the growth rate.
- (d) "A" is more recent and shows slight reduction in the growth rate. (2009)

72. Geometric representation of age structure is a characteristic of

- (a) population (b) landscape
- (c) ecosystem (d) biotic community. (2007)

73. The population of an insect species shows an explosive increase in numbers during rainy season followed by its disappearance at the end of the season. What does this show?

- (a) The food plants mature and die at the end of the rainy season.
- (b) Its population growth curve is of J-type.
- (c) The population of its predators increases enormously.
- (d) S-shaped or sigmoid growth of this insect. (2007)

74. If the mean and the median pertaining to a certain character of a population are of the same value, the following is most likely to occur

- (a) a bi-modal distribution
- (b) a T-shaped curve
- (c) a skewed curve
- (d) a normal distribution. (2007)

75. A high density of elephant population in an area can result in

- (a) intraspecific competition
- (b) interspecific competition
- (c) predation on one another
- (d) mutualism. (2007)

76. Certain characteristic demographic features of developing countries are

- (a) high fertility, low or rapidly falling mortality rate, rapid population growth and a very young age distribution

- (b) high fertility, high density, rapidly rising mortality rate and a very young age distribution
- (c) high infant mortality, low fertility, uneven population growth and a very young age distribution
- (d) high mortality, high density, uneven population growth and a very old age distribution. (2004)

77. What is a keystone species?

- (a) A species which makes up only a small proportion of the total biomass of a community, yet has a huge impact on the community's organization and survival.
- (b) A common species that has plenty of biomass, yet has a fairly low impact on the community's organization.
- (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 which affects many other species. (2004)

78. The maximum growth rate occurs in

- (a) stationary phase
- (b) senescent phase
- (c) lag phase
- (d) exponential phase. (2004)

79. Mycorrhiza is an example of

- (a) symbiotic relationship
- (b) ectoparasitism
- (c) endoparasitism
- (d) decomposers. (2003)

80. Two opposite forces operate in the growth and development of every population. One of them is related to the ability to reproduce at a given rate. The force opposite to it is called

- (a) fecundity
- (b) environmental resistances
- (c) biotic control
- (d) mortality. (2003, 1998)

81. Which type of association is found in between entomophilous flower and pollinating agent?

- (a) Mutualism (b) Commensalism
- (c) Co-operation (d) Co-evolution (2002)

82. Two different species cannot live for long duration in the same niche or habitat. This law is

- (a) Allen's law
- (b) Gause's hypothesis
- (c) Dollo's rule
- (d) Weismann's theory. (2002)

83. In a population, unrestricted reproductive capacity is called as

- (a) biotic potential (b) fertility rate
- (c) carrying capacity (d) birth rate. (2002)

- 90.** Which one is true?

 - (a) Commensalism when none of the interacting populations affect each other.
 - (b) Symbiosis when the interaction is useful to both the populations.
 - (c) Symbiosis when neither populations affects each other.
 - (d) Commensalism when the interaction is useful to both the populations. (1991)

91. The relation between algae and fungi in a lichen is

 - (a) symbiosis (b) parasitism
 - (c) commenlasm (d) protocooperation. (1989)

92. A mutually beneficial association necessary for survival of both partners is

 - (a) mutualism/symbiosis
 - (b) commensalism
 - (c) amensalism
 - (d) both (a) and (b). (1988)

93. Competition for light, nutrients and space is most severe between

 - (a) closely related organism growing in different niches
 - (b) closely related organisms growing in the same area/niche
 - (c) distantly related organisms growing in the same habitat
 - (d) distantly related organisms growing in different niches. (1988)

ANSWER KEY

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. (d) | 2. (a) | 3. (a) | 4. (a) | 5. (d) | 6. (d) | 7. (b) | 8. (d) | 9. (c) | 10. (c) |
| 11. (a) | 12. (c) | 13. (b) | 14. (d) | 15. (c) | 16. (c) | 17. (c) | 18. (d) | 19. (c) | 20. (d) |
| 21. (a) | 22. (a) | 23. (b) | 24. (c) | 25. (c) | 26. (d) | 27. (c) | 28. (c) | 29. (d) | 30. (b) |
| 31. (b) | 32. (d) | 33. (d) | 34. (b) | 35. (c) | 36. (a) | 37. (c) | 38. (a) | 39. (d) | 40. (d) |
| 41. (a) | 42. (b) | 43. (c) | 44. (b) | 45. (d) | 46. (c) | 47. (d) | 48. (b) | 49. (b) | 50. (a) |
| 51. (d) | 52. (a) | 53. (c) | 54. (a) | 55. (d) | 56. (b) | 57. (c) | 58. (a) | 59. (c) | 60. (d) |
| 61. (c) | 62. (d) | 63. (a) | 64. (b) | 65. (d) | 66. (a) | 67. (c) | 68. (c) | 69. (b) | 70. (c) |
| 71. (d) | 72. (a) | 73. (b) | 74. (d) | 75. (a) | 76. (a) | 77. (a) | 78. (d) | 79. (a) | 80. (b) |
| 81. (d) | 82. (b) | 83. (a) | 84. (a) | 85. (d) | 86. (d) | 87. (d) | 88. (b) | 89. (b) | 90. (b) |
| 91. (a) | 92. (a) | 93. (b) | | | | | | | |

Hints & Explanations

- 1. (d) :** Niche is specific part of habitat occupied by individuals of a species which is circumscribed by its range of tolerance, range of movement, microclimate, etc. Hence, niche refers to the functional role played by the organism where it lives.

2. (a) Pneumatophores are breathing or respiratory roots which are found in plants growing in mangroves or water logged soil or saline swamps. Such plants are called halophytes.