

## CHAPTER – 17

### Organisms and Populations

1. Which of the following is a characteristic of a population?
  - a) Size
  - b) Density
  - c) Distribution
  - d) All of the above
  
2. The term 'biotic potential' refers to:
  - a) The maximum reproductive capacity of an organism
  - b) The influence of abiotic factors on population
  - c) The number of species in an ecosystem
  - d) The interactions between different populations
  
3. In ecology, the 'carrying capacity' of an environment is:
  - a) The maximum number of individuals that the environment can sustain

The rate at which populations grow

  - c) The number of different species present in an ecosystem
  - d) The amount of resources available to a population
  
4. Which of the following is an example of a density-dependent factor affecting population growth?
  - a) Climate
  - b) Natural disasters
  - c) Disease
  - d) Temperature
  
5. The logistic growth model of populations accounts for:
  - a) Unlimited resources
  - b) Constant growth rate
  - c) Carrying capacity
  - d) Exponential growth

6. Which of the following represents a K-strategist species?

- a) Sea turtles
- b) Bacteria
- c) Insects
- d) Weeds

7. The term 'niche' in ecology refers to:

- a) The role of an organism in its environment
- b) The habitat where an organism lives
- c) The physical space an organism occupies
- d) The size of a population

8. Which type of distribution pattern is characterized by individuals being evenly spaced throughout an area?

- a) Random
- b) Uniform
- c) Clumped
- d) None of the above

9. In a predator-prey relationship, if the prey population increases significantly, the predator population is likely to:

- a) Increase
- b) Decrease
- c) Remain constant
- d) Become extinct

10. Which of the following is a density-independent factor affecting populations?

- a) Competition
- b) Predation

- c) Weather conditions
- d) Disease

11. The 'r-strategy' of reproduction is characterized by:

- a) High investment in fewer offspring
- b) Low investment in many offspring
- c) Long lifespan
- d) Stable population size

12. Which term describes the interaction where one species benefits while the other is neither helped nor harmed?

- a) Mutualism
- b) Commensalism
- c) Parasitism
- d) Competition

13. In which type of population interaction do both species benefit?

- a) Mutualism
- b) Commensalism
- c) Competition
- d) Parasitism

14. The study of the number of individuals in a population and how they change over time is called:

- a) Demography
- b) Ecology
- c) Evolutionary biology
- d) Environmental science

15. Which of the following is NOT a factor influencing population size?

- a) Birth rate

- b) Death rate
- c) Immigration
- d) Soil composition

16. The term 'succession' in ecology refers to:

- a) The change in species composition of a community over time
- b) The process of photosynthesis
- c) The flow of energy through an ecosystem
- d) The interaction between predator and prey

17. Which type of ecological interaction is exemplified by bees pollinating flowers?

- a) Mutualism
- b) Parasitism
- c) Commensalism
- d) Competition

18. Which of the following best describes the term 'population density'?

- a) The number of individuals per unit area
- b) The total number of individuals in a population
- c) The number of species in a habitat
- d) The average age of individuals in a population

19. The 'age structure' of a population can provide information about:

- a) Population growth potential
- b) The geographic distribution of individuals
- c) The diet of the population
- d) The habitat type

20. Which of the following is an example of a density-dependent factor?

- a) Temperature
- b) Drought

- c) Disease
- d) Flood

21. Which of the following ecological concepts describes the number of different species in a community?

- a) Biodiversity
- b) Biotic potential
- c) Carrying capacity
- d) Population density

22. The term 'symbiosis' refers to:

- a) Any close interaction between two species
- b) Competition between species
- c) The process of adaptation
- d) The flow of energy in an ecosystem

23. Which of the following is an example of a clumped distribution pattern?

- a) School of fish
- b) Trees in a forest
- c) Flowers in a meadow
- d) Birds in a desert

24. The interaction between organisms of different species competing for the same resource is known as:

- a) Competition
- b) Mutualism
- c) Commensalism
- d) Parasitism

25. The concept of 'carrying capacity' is most closely related to which model of population growth?

- a) Exponential growth
- b) Logistic growth
- c) Linear growth
- d) Cyclic growth

26. Which type of survivorship curve is characterized by high survival rates for early life stages and a decline in survival rates with age?

- a) Type I
- b) Type II
- c) Type III
- d) Type IV

27. The term 'biotic factors' in an ecosystem includes:

- a) Climate
- b) Soil type
- c) Predators
- d) Water availability

28. Which of the following describes a population that is well adapted to its environment and shows slow population growth?

- a) K-strategist
- b) R-strategist
- c) Pioneer species
- d) Invasive species

29. Which of the following interactions is detrimental to both species involved?

- a) Mutualism
- b) Commensalism
- c) Competition
- d) Predation

30. Which term refers to the role of an organism

within its habitat, including its interactions with biotic and abiotic factors?

- a) Niche
- b) Habitat
- c) Ecosystem
- d) Population

31. Which type of population distribution is often seen in territorial animals?

- a) Random
- b) Uniform
- c) Clumped
- d) None of the above

32. Which of the following is a common method of measuring population density?

- a) Quadrat sampling
- b) Mark-recapture
- c) Transect sampling
- d) All of the above

33. The term 'biome' refers to:

- a) A community of organisms interacting with their environment
- b) A large geographical area with specific climate conditions and dominant plant life
- c) The total number of species in an ecosystem
- d) The flow of energy through a food chain

34. Which term describes the gradual replacement of one community by another until a stable community is established?

- a) Succession
- b) Adaptation
- c) Competition
- d) Colonization

35. Which of the following best describes an 'r-strategist' species?

- a) Long lifespan, few offspring
- b) Short lifespan, many offspring
- c) Stable population size, low reproduction rate
- d) High investment in offspring

36. The 'fundamental niche' of an organism refers to:

- a) The range of conditions an organism can potentially occupy
- b) The actual environment an organism occupies
- c) The competitive interactions between species
- d) The area where an organism lives

37. Which of the following interactions is characterized by one species benefiting at the expense of another?

- a) Mutualism
- b) Commensalism
- c) Parasitism
- d) Competition

38. The term 'ecological succession' refers to:

- a) The process of changes in species composition in an ecosystem over time
- b) The increase in population size due to immigration
- c) The process of energy flow through an Ecosystem
- d) The adaptation of species to environmental changes

39. Which of the following factors does NOT influence population growth?

- a) Birth rate
- b) Death rate
- c) Immigration
- d) Soil pH

40. The concept of 'niche partitioning' is associated with:



- a) Resource competition
- b) Mutualistic relationships
- c) Parasitism
- d) Symbiotic interactions

41. Which of the following describes a type of population growth that is limited by the carrying capacity of the environment?

- a) Exponential growth
- b) Logistic growth
- c) Linear growth
- d) Cyclic growth

42. Which term describes the variety of different species in a particular ecosystem?

- a) Species diversity
- b) Population density
  
- c) Biotic potential
- d) Ecosystem stability

43. Which of the following is an example of a mutualistic interaction?

- a) Bees pollinating flowers
- b) Lions preying on zebras
- c) Parasitic worms in the intestines of mammals
- d) Birds competing for nesting sites

44. In which type of population growth do resources limit the growth rate as the population size increases?

- a) Exponential growth
- b) Logistic growth
- c) Linear growth

d) Cyclic growth

45. Which of the following is a characteristic of a K-strategist?

- a) High reproductive rate
- b) Short lifespan
- c) High parental care
- d) Rapid population growth

46. Which type of survivorship curve represents a species that produces many offspring but provides little parental care?

- a) Type I
- b) Type II
- c) Type III
- d) Type IV

47. Which of the following best describes a population that exhibits 'clumped' distribution?

- a) Individuals are evenly spaced
- b) Individuals are randomly distributed
- c) Individuals are grouped in patches
- d) Individuals are dispersed uniformly

48. The term 'density-independent factors' refers to:

- a) Factors that affect populations regardless of their density
- b) Factors that are influenced by population density
- c) Factors related to competition
- d) Factors affecting only large populations

49. Which of the following interactions can lead to resource partitioning?

- a) Competition
- b) Mutualism

- c) Commensalism
- d) Parasitism

50. Which of the following is NOT a type of population interaction?

- a) Competition
- b) Predation
- c) Parasitism
- d) Photosynthesis

**Answer Key for Chapter 17 (Organisms and Populations)**

1	2	3	4	5
D	A	A	C	C
6	7	8	9	10
A	A	B	A	C
11	12	13	14	15
B	B	A	A	D
16	17	18	19	20
A	A	A	A	C
21	22	23	24	25
A	A	A	<u>A</u>	<u>B</u>
26	27	28	29	30
A	C	A	C	A
31	32	33	34	35
B	D	B	B	A
36	37	38	39	40
A	C	A	D	A
41	42	43	44	45
B	A	A	B	C
46	47	48	49	50
C	C	A	A	D