

4. Population Ecology

Class Test 1: Population ecology

1.1 Which fact is NOT true of a population?...A population consists of a group of organisms *

- ☐ of the same species
- ☐ that live in a variety of areas
- ☐ that breed freely amongst each other
- ☐ that live in a defined area

1.2 Natality *

- ☐ in plants, is the production of flowers
- ☐ in animals, is their birth rate
- ☐ is the average number of offspring each female produces in a lifetime
- ☐ is a population parameter that causes population decrease

1.3 A closed population is one which: *

- ☐ has no births
- ☐ has no emigration or natality
- ☐ has no deaths or births
- ☐ has no immigration or emigration

1.4 Which fact is NOT true of a geometric growth form? *

- ☐ the population size increases rapidly with time
- ☐ the population growth rate is gradually affected by environmental resistance
- ☐ there is no equilibrium phase in this growth form
- ☐ it has a J-shaped curve

1.5 In the logistic growth form, birth rate is the same as the death rate in: *

- ☐ the lag and equilibrium phases
- ☐ the lag phase only
- ☐ the lag, equilibrium and death phases
- ☐ the equilibrium phase only

1.6 The maximum number of individuals of a specific species that a specific habitat can support is known as the: *

- ☐ birth rate
- ☐ total population
- ☐ carrying capacity
- ☐ stable population

1.7 A stable population is one whose: *

- ☐ numbers stay more or less constant for a long period of time
- ☐ birth rate is higher than its death rate
- ☐ individuals only emigrate
- ☐ individuals are all the same species

1.8 What feature does not relate to intraspecific competition? *

- ☐ it occurs between individuals of the same species
- ☐ only the fittest will survive
- ☐ it occurs between individuals of different species
- ☐ weak genes can be eliminated from the species

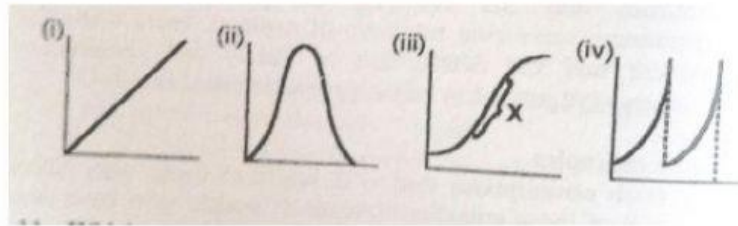
1.9 If two individuals of different species were competing for the same resources it is known as: *

- ☐ predation
- ☐ intraspecific competition
- ☐ predation and territoriality
- ☐ interspecific competition

1.10 Which of the following is/are not a parameter/parameters that influences/influence the size of a population? (i) natality and mortality (ii) immigration and emigration (iii) population density *

- ☐ (i)
- ☐ (i) and(ii)
- ☐ (ii) and (iii)
- ☐ (iii)

Questions 1.11 and 1.12 refer to the graphs below



1.11 Which graph/s represent/s a logistic growth curve of a population? *

- ☐ only (i)
- ☐ only (ii)
- ☐ only (iii)
- ☐ (i) and (iv)

1.12 The part of the graph (iii) marked with an X may be ascribed to: *

- ☐ emigration and natality
- ☐ immigration and mortality
- ☐ immigration and natality
- ☐ emigration and mortality

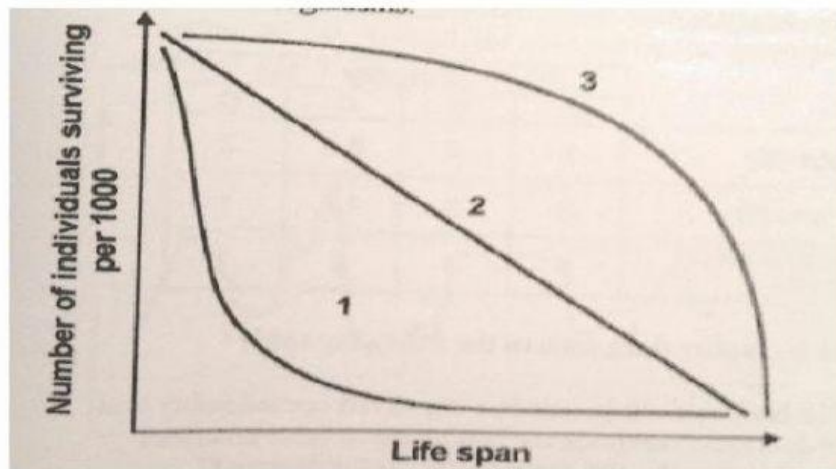
1.13 Environmental resistance *

- ☐ prevents a new population from immigrating into a new habitat
- ☐ causes the development of resistant strains of population under different conditions
- ☐ is the sum of the factors inhibiting population growth as a result of current conditions in the habitat
- ☐ ensures the survival of the fittest

1.14 The net increase of a population is determined by four population parameters, that is: *

- ☐ adding births and deaths and subtracting emigration and immigration
- ☐ adding births and immigration and subtracting deaths and emigration
- ☐ adding births and emigration and subtracting deaths and immigration
- ☐ adding deaths and immigration and subtracting births and emigration

Questions 1.15 and 1.16 are based on the graph below which indicates the number of survivors per 1000 over the life span of the organisms.



1.15 Which statement with regard to curve 3 is INCORRECT? *

- ☐ most offspring reach the adult stage
- ☐ mortality occurs mainly among the older animals
- ☐ curve 3 is applicable to most animals
- ☐ the curve represents populations with no parental care

1.16 According to curve 1 *

- ☐ the possibility of dying increases in the course of time
- ☐ few of the offspring survive the initial life stages
- ☐ the numbers decrease in proportion with the passing of time
- ☐ most of the offspring reach maturity

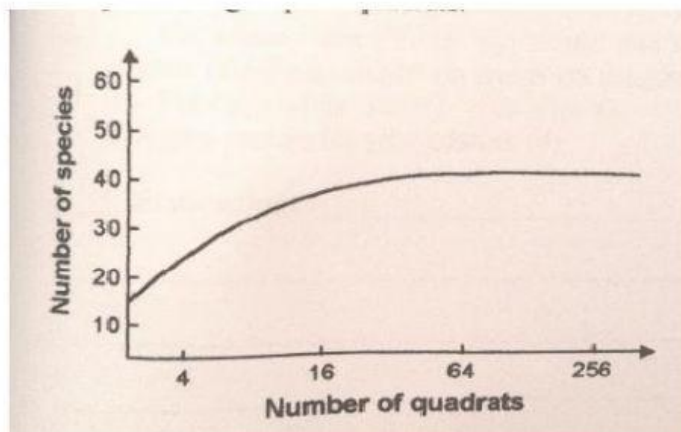
1.17 Which of the following might hinder you from getting an accurate estimate of the size of an animal population using the mark-recapture method? *

- ☐ random spreading of individuals after release
- ☐ large scale immigration
- ☐ hardly any emigration
- ☐ a very long adult life

1.18 The mark-recapture technique can be used to estimate population size. Which of the following represents the correct formula for calculation population size? (X - total no. of animals caught, marked and released, Y - total no. of animals caught in second sample, Z - no. of marked animals in second sample.) *

- ☐ XY/Z (i.e. X multiplied by Y, divided by Z)
- ☐ Z/XY
- ☐ X/ZY
- ☐ Y/XZ

1.19 The graph shows the number of individuals of a species present in groups of quadrats. The minimum number of quadrats which can be used to give reliable estimates of the number of species is: *



- ☐ 4
- ☐ 16
- ☐ 64
- ☐ 256

1.20 Marked quadrats are frequently used to assess population densities. The reliability of this method depends on the assumption that the: *

- ☐ quadrats must be arranged randomly throughout the whole area
- ☐ some must be counted in winter, others in summer
- ☐ male to female ratio is similar
- ☐ animals do not roam over a large area