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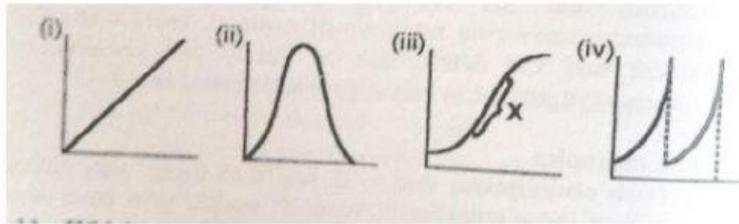
1.11 Which graph/s represent/s a logistic growth curve of a population? *

○ 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 1 000 over the life span of the organisms.
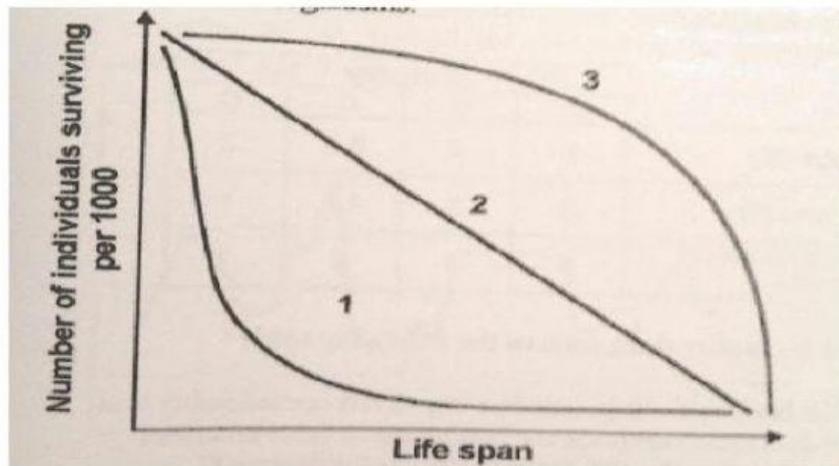
1.15 Which statement with regard to curve 3 in INCORRECT? *

○ 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 popuation 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: *
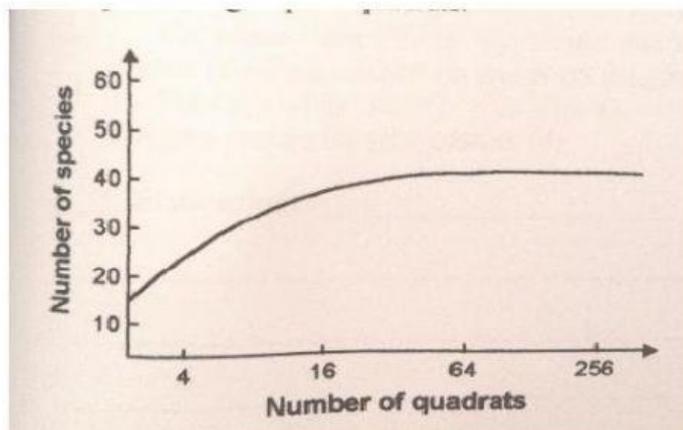
○ 4

○ 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