

Past-paper walk-through

Populations ■ 19.4

eXercise

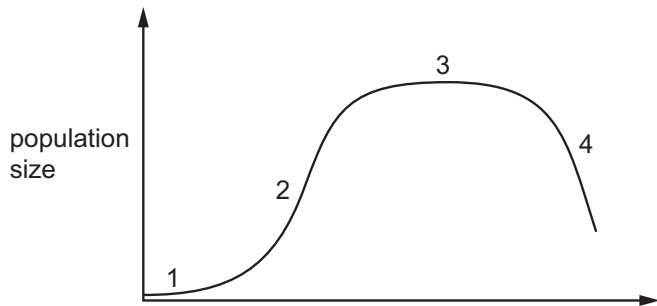
Questions in this set

- 0610/21 N25 Q36 ■ 1 mark
- 0610/22 N25 Q37 ■ 1 mark
- 0610/23 N25 Q37 ■ 1 mark
- 0610/21 J25 Q37 ■ 1 mark
- 0610/22 J25 Q38 ■ 1 mark
- 0610/23 J25 Q38 ■ 1 mark
- 0610/22 M25 Q37 ■ 1 mark
- 0610/22 M25 Q38 ■ 1 mark

Question 36

0610/21 N25 ■ Q36 ■ 1 mark

36 The graph shows how the size of a population changes over time.



Question 36

time

Which row identifies the phases of population growth?

	death phase	exponential phase	lag phase
A	3	1	4
B	3	2	1
C	4	1	3
D	4	2	1

Question 36

Solution 36

Answer: **D**

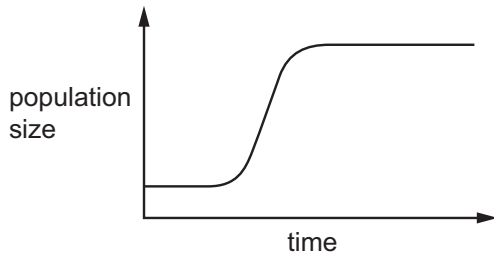
Why

- The lag phase is the slow start, the exponential phase the steep rise.
- The stationary phase is the plateau, where births balance deaths.
- The death phase is the final fall, where deaths outnumber births.

Question 37

0610/22 N25 ■ Q37 ■ 1 mark

37 The graph shows part of a growth curve for a bacterial population.



What is **not** shown in the graph?

Question 37

what is **NOT** shown in the graph:

- A** the death phase
- B** the exponential phase
- C** the lag phase
- D** the stationary phase

Solution 37

Answer: **A**

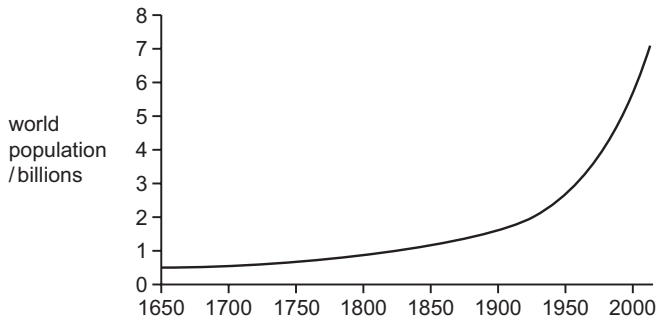
Why

- A full growth curve has four phases: lag, exponential, stationary and death.
- Read which of them the graph actually reaches.
- A curve still rising or just levelling off has not yet shown the final decline.

Question 37

0610/23 N25 ■ Q37 ■ 1 mark

37 The graph shows how the population of the world increased from 1650 until the present day.



Question 37

year

Which phases of a sigmoid curve of population growth are **not** shown on this graph?

- A** death and lag
- B** exponential (log) and stationary
- C** lag and exponential (log)
- D** stationary and death

Solution 37

Answer: **D**

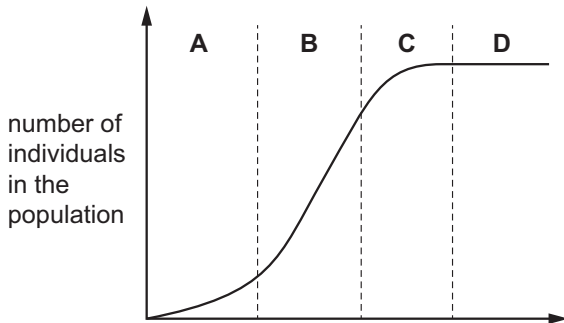
Why

- The curve is rising ever more steeply, which is exponential growth.
- There is no plateau, so the population has not yet reached a stationary phase.
- That means no limiting factor has yet halted the increase.

Question 37

0610/21 J25 ■ Q37 ■ 1 mark

37 Which letter represents the lag phase in the population graph shown?



Question 37

time

Solution 37

Answer: **A**

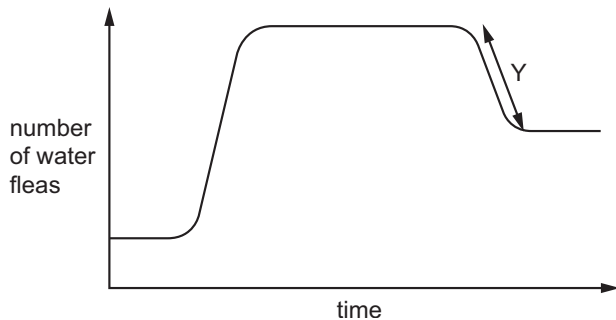
Why

- The lag phase comes first, while the few individuals are becoming established.
- The population is small and growing very slowly there.
- It is the flat section at the very beginning, before the steep exponential rise.

Question 38

0610/22 J25 ■ Q38 ■ 1 mark

38 The graph shows the number of water fleas in a newly-created pond.



Which event could be responsible for the shape of the graph at Y?

- A** the addition of extra oxygenating plants to the pond
- B** an increase in the birth rate of the water fleas
- C** an increase in the food supply for the water fleas
- D** the addition of predators which feed on water fleas

Solution 38

Answer: **D**

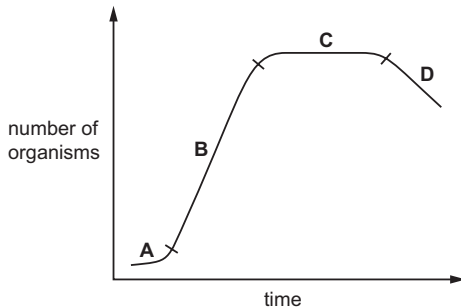
Why

- The graph levels off, so births and deaths have come into balance.
- That happens when a resource runs short or waste builds up.
- So look for the event that limits the population, not one that would let it keep growing.

Question 38

0610/23 J25 ■ Q38 ■ 1 mark

38 Which phase in the population growth curve shows when death rates are higher than birth rates?



Solution 38

Answer: **D**

Why

- The population falls when deaths outnumber births.
- That is the phase where the curve turns downwards after the plateau.
- The lag, exponential and stationary phases all have births at least matching deaths.

Question 37

0610/22 M25 ■ Q37 ■ 1 mark

37 A coral reef contains species such as stony corals, sponges, seahorses and whale sharks.

These species interact with each other and are affected by the temperature, salt concentration and oxygen concentration of the water.

Using all the information given, what is being described?

- A** community
- B** ecosystem
- C** food web
- D** population

Solution 37

Answer: **B**

Why

- An ecosystem is the community of organisms *together with* their non-living surroundings.
- The corals, sponges and sharks are the community.
- Temperature and salt concentration are the physical factors, so the two together make an ecosystem.

Question 38

0610/22 M25 ■ Q38 ■ 1 mark

38 What can cause an increase in the size of a rabbit population?

- A** an increase in a disease that affects rabbits
- B** an increase in available food for the rabbits
- C** an increase in pollution in the habitat of the rabbits
- D** an increase in predation of rabbits

Solution 38

Answer: **B**

Why

- A population grows when birth rate exceeds death rate.
- More available food supports more individuals and more successful breeding.
- Disease, pollution and more predators would all push the population down.