

Self-test questions

Topic 5

- 1 Which statement best defines the meaning of the term 'evolution'?
 - A changes in species toward greater complexity over time
 - B changes in gene frequencies in a population over time
 - C the strongest individuals survive and produce the most offspring
 - D changes in an individual over time in response to natural selection
- 2 Both birds and insects have wings. This means that wings are:
 - A structures determined by pairs of identical chromosomes
 - B structures that share a common evolutionary history
 - C structures that are homologous
 - D structures that are analogous
- 3 If the same protein is found in the blood of three different species, this is evidence that the species:
 - A evolved in different habitats
 - B evolved in the same habitat
 - C evolved from a common ancestor
 - D evolved from different ancestors
- 4 Natural selection is best defined as:
 - A the mechanism by which populations produce more offspring than the environment can support
 - B the cumulative change in the heritable characteristics of a population
 - C the mechanism that leads to more variation in a population
 - D the mechanism that increases the chance of certain individuals reproducing
- 5 Which of these factors is/are essential if evolution is to occur in a population?
 - i natural selection
 - ii variation
 - iii inheritance of characteristics
 - A i only
 - B i and ii only
 - C i, ii and iii
 - D ii and iii only
- 6 Why has evolution led to antibiotic resistance in bacteria?
 - A Not completing a course of antibiotics allows resistant bacteria to develop.
 - B Bacteria that are resistant survive to pass on this characteristic to their offspring.
 - C Bacteria develop alternative metabolic pathways to deal with the presence of antibiotics.
 - D Bacteria neutralise the effect of the antibiotic.
- 7 Recently *Staphylococcus aureus* (an infectious wound bacterium) has evolved resistance to most antibiotics. If antibiotic use were stopped, what would you predict would happen to these *S. aureus* populations?
 - A They will become extinct without antibiotics.
 - B The frequency of resistant forms will increase.
 - C The populations will colonise new environments.
 - D The frequency of non-resistant forms will increase.

- 8 What is the correct sequence of levels or hierarchy of taxa used in classification?
- A domain, phylum, kingdom, class, order, family, genus, species
 - B kingdom, domain, phylum, class, order, family, genus, species
 - C domain, kingdom, phylum, class, order, family, species, genus
 - D domain, kingdom, phylum, class, order, family, genus, species
- 9 Which statement best describes these two plants: ragwort (*Senecio jacobaea*) and groundsel (*Senecio vulgaris*).
- A Both belong to the same species.
 - B Each belongs to a different group.
 - C Both belong to the same order.
 - D Each belongs to a different order.
- 10 *Ranus temporaria* is a species of frog that is found in Europe. If a population of frogs migrated to a small isolated lake and over many generations became a different species, what might be a suitable name for the new species?
- A *Ranus protemporaria*
 - B *Proranus temporaria*
 - C *Proranus protemporaria*
 - D *Ranus temporaria alternata*