



Year 10 Science

ANSWERS (2020 NE)

Biology 2 Test: Evolution and Natural Selection

SECTION 1: MULTIPLE CHOICE (1 mark each)

Circle your answer on the multiple choice answer sheet.

1. Biodiversity is
 - ☒ a) a wide variety of different living things.
 - b) a balance that can be maintained or supported for a long time to come.
 - c) when one species survives because it is more suited to its environment than another.
 - d) a measure of the number of individuals of one species living in an area.
2. Features that allow an organism to survive in its environment are called
 - a) adaptions.
 - ☒ b) adaptations.
 - c) evolutions.
 - d) selections.
3. Which of these is an example of a structural adaptation?
 - a) A dog pants when it gets hot.
 - b) Camels can store fat and their bodies are very good at conserving water.
 - ☒ c) Cactus plants have sharp spines to stop animals from eating them.
 - d) Bats hunt during the evening, when there are most insects about.
4. Desert hopping mice dig burrows and sleep in them during the day to escape the heat. When it gets cold they snuggle together to keep warm, but when it gets hot, they spread themselves out. This is an example of
 - a) a physiological adaptation.
 - b) a functional adaptation.
 - c) a structural adaptation.
 - ☒ d) a behavioural adaptation.
5. Which of the following adaptations would be likely to be found in animals which live in very cold environments?
 - a) burrowing into the soil and seeking refuge there during the hottest part of the day
 - b) the capacity to produce very concentrated urine while maintaining normal body fluids
 - ☒ c) a small surface area to volume ratio as a result of small appendages and ears and a larger than normal body size
 - d) an ability to excrete salt against a concentration gradient
6. Natural selection is often described as
 - ☒ a) survival of the fittest.
 - b) survival of the fattest.
 - c) survival of the fastest.
 - d) survival of the finest.

7. The scientist who is famous for his Theory of Evolution, about how living things adapt and change over time, is
- a) Albert Einstein.
 - b) Isaac Newton.
 - ☒ c) Charles Darwin.
 - d) Thomas Edison.
8. Which of the following is not an example of natural selection?
- a) Cheetahs have evolved to be faster as their prey has become faster.
 - b) Giraffes have evolved longer necks to reach more food.
 - ☒ c) Sheep are being bred to have finer wool.
 - d) In nature, albino animals are rare as they are easier for predators to catch.
9. Natural selection only occurs when
- a) there is sexual reproduction.
 - ☒ b) there are more offspring produced than will survive to breed.
 - c) there is change in the environment.
 - ☒ d) humans influence the environment.
10. The Theory of Evolution says that
- ☒ a) living things change gradually over generations as they adapt to their changing environment.
 - b) living things change suddenly in response to sudden changes in their environment.
 - c) living things change themselves when they see the need to.
 - d) living things change because of mutations.
11. All things being different between and within species is
- a) similarity
 - b) speciation
 - c) evolution
 - ☒ d) diversity
12. A sudden change in genetic make-up that results in a new characteristic which is inheritable is called a
- a) multiple allele.
 - b) lethal factor.
 - ☒ c) mutation.
 - d) chromosome.
13. Which of the following is not necessary for evolution?
- a) variation
 - b) competition
 - c) natural selection
 - ☒ d) meiosis

14. Which of the following is not evidence for evolution?

- ☒ a) features which are not similar in structure but perform the same function in unrelated species, eg insect wings and bat wings
- b) similar structures which perform different functions in related species, eg dual bone in forearm of human, frog and pigeon
- c) structures which are found in related species, but which may no longer serve a function, eg whale pelvis
- d) fossils which show gradual change in similar species

15. Which of the following statements about Natural Selection is true?

- ☒ a) Natural Selection is based on the idea that life is an ongoing struggle for survival.
- b) Organisms do not need to compete for food, water, mates, light or space.
- c) Organisms compete for natural resources only with other members of the same species.
- d) Those individuals who compete successfully have less chance of passing on their genes.

Write your answers on the lined paper provided.

The reproductive cycle of the black duck begins with a courtship display by the adults. The two birds, male and female, perform a number of movements and sounds, a ritual which continues for some weeks. Much of this occurs in the water; the birds use their webbed feet to manoeuvre around in the water. This courtship results in the birds establishing a bond before mating occurs in the autumn. The birds fly inland to lakes during the winter where nests are made on banks. Eggs are laid and the female sits on them, using her body heat to incubate them. When the ducklings hatch, they are protected and fed by her until they become independent. She uses her short, flat bill to forage in the water for food which includes insect larvae and small crustaceans. As they mature the ducklings begin to lose their soft down and develop a coat of water resistant feathers.

List:

a) the structural adaptations	webbed feet short, flat bill	water resistant feathers
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b) the behavioural adaptations

- make nests
- courtship display
- fly inland to lakes
- mother feeds offspring

c) the physiological (functional) adaptations which are mentioned in the passage (10)

lose soft down
incubate eggs

DNA	Fossils	Embryology etc.
<ul style="list-style-type: none"> - more identical DNA = more closely related. - eg. DNA of Modern humans/Neanderthals etc. 	<ul style="list-style-type: none"> - more similar fossils = more closely related - eg. bat wing & human etc. 	

END OF TEST (OUT OF 35 MARKS)

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