BRITISH COLUMBIA SCIENCE 10 · UNIT A · 25 QUESTIONS

DNA and the Diversity of Living Things — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A gene is best described as a section of DNA that**

- **A** makes up the entire chromosome
- **B** codes for one specific trait or protein
- **C** controls every trait in an organism
- **D** carries energy between cells

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2 **In DNA, adenine always pairs with**

A guanine

B cytosine

C thymine

D uracil

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3 **An organism with genotype Aa has phenotype tall. This shows that the allele for tall is**

A dominant

B recessive

C sex-linked

D mutated

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4 **Two pea plants with genotype Aa are crossed. The percent of offspring expected to show the recessive trait is**

A 50 percent

B 75 percent

C 25 percent

D 100 percent

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5 **A plant with genotype AA is crossed with a plant with genotype aa. All of the offspring will have genotype**

A AA

B aa

C Aa

D AA or aa

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6 **A red snapdragon (RR) is crossed with a white snapdragon (rr). With incomplete dominance, the offspring flowers are**

- A red
- B white
- C red and white spotted
- D pink

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7 **A person with blood type AB has genotype IAIB. This is an example of**

- A co-dominance
- B complete dominance
- C incomplete dominance
- D sex linkage

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8 **A woman carries the allele for colour blindness on one X chromosome and has a son. The chance that her son is colour blind is**

- A 25 percent
- B 50 percent
- C 75 percent
- D 100 percent

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9 **Colour blindness is a sex-linked recessive trait carried on the X chromosome. A colour blind father and a mother with normal vision who is not a carrier have a daughter. What will the daughter be?**

- A colour blind
- B unable to inherit the allele
- C colour blind only as an adult
- D a carrier with normal vision

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10 **A mutation that gives a bacterium resistance to an antibiotic is best described as**

A negative in every environment

B neutral because bacteria lack DNA

C positive for the bacterium in that environment

D impossible without human help

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11 **Which of the following is a mutagen**

A clean drinking water

B ultraviolet radiation

C vitamin C

D oxygen gas

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12 **A carcinogen is a substance that**

A can damage DNA and increase the risk of cancer

B repairs damaged DNA in cells

C prevents all mutations

D only affects skin cells

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13 **A mutation in a skin cell that does not change the protein made is best described as**

A positive

B negative

C lethal

D neutral

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14 **Natural selection acts most directly on the**

A genotype of a species

B climate of a region

C phenotype of an individual

D age of a fossil

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15 **A population of beetles lives on brown bark. Green beetles are eaten more often by birds. Over many generations, the population is expected to become mostly**

A brown

B green

C equal brown and green

D extinct

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16 **The graph shows the percent of dark moths in a forest over four surveys. Between survey 1 and survey 4, the percent of dark moths**

A decreased from 80 percent to 20 percent

B stayed at 50 percent

C increased from 20 percent to 40 percent

D increased from 20 percent to 80 percent

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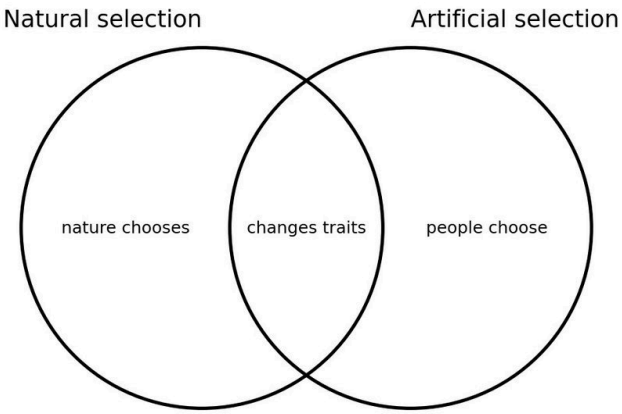
17 **The diagram compares natural selection and artificial selection. The trait shared by both processes is that they**



A are directed by human choice

B change trait frequencies over generations

C act only on farm animals

D require genetic engineering

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18 **Finches on different Galapagos islands evolved different beak shapes. The beaks suit different foods. This pattern is called**

A artificial selection

B cloning

C adaptive radiation

D gene therapy

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19 **A farmer breeds only the wheat plants that produce the most grain each year. This is an example of**

A artificial selection

B natural selection

C adaptive radiation

D extinction

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20 **An invasive species is most likely to harm a new ecosystem because it**

A always eats only one kind of food

B cannot reproduce outside its home range

C increases the diversity of native species

D has few predators and can outcompete native species

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21 **A species becomes extinct when**

A its population drops for one season

B no living members of the species remain

C it moves to a new habitat

D a new predator arrives

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22 **A genetically modified crop produces its own pest protection. It could benefit farmers by**

A removing all insects from the region

B making the crop grow without water

C reducing the amount of pesticide sprayed

D ending the need for soil

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23 **Gene therapy aims to treat a genetic disorder by**

A removing all genes from a cell

B copying a whole organism

C changing the diet of a patient

D adding or replacing a faulty gene in cells

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24 **A clone of an animal is**

A genetically identical to the donor animal

B a mix of two different species

C always born as a twin

D identical in learned behaviour too

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25 **Forensic scientists use DNA evidence because a DNA profile is**

A identical for all relatives

B almost unique to each person

C changed by every meal

D the same for all humans

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ANSWER KEY

1.	B	**10.**	C	**19.**	A
2.	C	**11.**	B	**20.**	D
3.	A	**12.**	A	**21.**	B
4.	C	**13.**	D	**22.**	C
5.	C	**14.**	C	**23.**	D
6.	D	**15.**	A	**24.**	A
7.	A	**16.**	D	**25.**	B
8.	B	**17.**	B		
9.	D	**18.**	C		

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