

These review questions are for Bio 1 Evolution topic. The questions were adapted from several sources, including the textbook's review questions.

1) Before the 1800s, the accepted age of the earth (based on literal interpretation of certain Bible passages) was thought to be roughly...

- A) 100,000 years
- B) 6000 years
- C) 100 million years
- D) 3548 years

2) The age of the earth that is accepted by modern scientific theory is roughly...

- A) 4.5 billion years
- B) 100 million years
- C) 200 million years
- D) 10,000 years
- E) 6000 years

3) A farmer has a barn that is completely closed off, so that none of his farm cats can enter the barn. In the barn live a population of mice. Most of the mice have dark brown fur but some of the mice have white fur (due to a mutation). One day, the farmer cuts a hole in the barn door to allow the cats to freely go inside to hunt mice. The white mice are easier for the cats to see so within a few weeks the mouse population contains only dark brown mice. The change in the mouse population over those weeks is an example of the evolutionary process of...

- A) Transition forms
- B) Vestigial organs
- C) Allopatric speciation
- D) Natural selection

4) On the Galapagos Islands, when there was a drought for several years, it was observed by scientists that the average beak size of a certain finch species became smaller during the drought years. Which explanation below is an explanation of the change in average beak size based on natural selection?

- A) Smaller beaks are more efficient at eating smaller seeds of plants that survive well during a drought, so the birds with smaller beaks survived better and passed the small beak genes on to more offspring.
- B) The birds with larger beaks wore down their beaks by rubbing their beaks on rocks to obtain water that is found under the rocks in dried stream beds.
- C) Birds with larger beaks left the islands to return to the mainland, where water is more plentiful.

5) Who was the scientist who discovered evolution by the process of natural selection?

- A) Jean-Baptiste Lamarck
- B) Gregor Mendel
- C) Charles Darwin
- D) Albert Einstein

6) In some human cultures, extremely long necks are considered a sign of beauty. In these cultures, young ladies sometimes wear neck rings that (over a period of years) stretch the bones and muscles of their necks to abnormally long lengths.

Will the offspring of the people with the stretched necks be born with longer necks?

- A) Yes
- B) No

7) In some human cultures, extremely long necks are considered a sign of beauty. In these cultures, young ladies sometimes wear neck rings that (over a period of years) stretch the bones and muscles of their necks to abnormally long lengths.

This results in an increased average neck length for the population (compared to if no neck rings were worn by any members of the population). Yet this is not an example of natural selection for increased neck length. Why is it not considered natural selection for neck length?

- A) The stretching of the neck muscles and bones does not change the genes for neck length in the population
- B) Only half the population (the females) are stretching their necks, so the changes in neck length are neutralized by the other half of the population (the males) that do not stretch their necks
- C) Humans in most populations do not stretch their necks. Only entire species can undergo natural selection, not individual populations within a species.
- D) The neck length increase is countered by a shortening of leg length, so there is no change in overall height.

8) Charles Darwin first became convinced of evolution by natural selection when he studied...

- A) Dinosaur fossils
- B) Birds on the Galapagos Islands
- C) The similarity between human and chimpanzee DNA
- D) The age of the earth

9) Charles Darwin lived...

- A) in the 1800s

- B) 6000 years ago
- C) in the early 1900s
- D) In Ecuador

10) Darwin's famous book, in which he first discussed evolution by natural selection, is...

- A) Principia Naturalis
- B) The Double Helix
- C) Men are from Chimps, Women are from Chimps, too
- D) Origin of species

11) When animals with fur are cold or frightened, tiny muscles (called arrector pili) in their skin raise each hair to help the animal keep warm and to make the animal appear larger. Humans also have arrector pili, even though we don't have enough hair for raising it to keep us warm or to make us look larger.

The arrector pili in humans are an example of a...

- A) Vestigial organ
- B) Transition form
- C) Pseudogene
- D) Mutation

12) Modern horses have a structure on their legs that serves no function but that is thought to have been a toe in the ancestral species that eventually evolved into the modern horse. This structure in modern horses is an example of a...

- A) Vestigial organ
- B) Transition form
- C) Pseudogene
- D) Mutation

13) When studying fossils, a major way that scientists estimate the age of the fossil is by...

- A) The mutation number of the DNA extracted from the marrow
- B) The contents of the animals fossilized stomach
- C) How much calcium the bones contain
- D) How deeply the fossil is buried

14) When studying fossils, a major way that scientists estimate the age of the fossil is by...

- A) The mutation number of the DNA extracted from the marrow
- B) The contents of the animals fossilized stomach
- C) How much calcium the bones contain

D) Measuring the decay of radioactive elements in the rock

15) Modern horses evolved from an ancestor species 55 million years ago that had five toes. Modern horses, however, have only one major toe (this one toe is the horse's hoof). Fossils of a horse-related species from 30 million years ago have three toes. This species with three toes would be an example of a _____.

- A) Vestigial organ
- B) Transition form
- C) Pseudogene
- D) Mutation

16) Almost all species of land animals (except insects) have four legs. The four legs of almost all land animals are thought to have come from the fact that land animals evolved from a type of fish with four major fins that evolved into the ancestor of all land animals about 350 million years ago. Fossils have been found of species that have some fish features but that also have some features of land animals (an example of such a species with fish and land animal features is the Tiktaalik. The Tiktaalik is an example of a...

- A) Vestigial organ
- B) Transition form
- C) Pseudogene
- D) Mutation

17) In lecture, we learned that one of the ways that fossils support the theory of evolution is that...

- A) Fossils can only have formed if the earth is very old
- B) Fossil species are generally very different from modern species
- C) Not all dead creatures are fossilized
- D) Fossils are not found before land animals evolved

18) The closest evolutionary relative to human beings is the...

- A) Gibbon
- B) Orangutan
- C) Gorilla
- D) Chimpanzee

19) Chimpanzee genes are _____ identical to human genes.

- A) 49%
- B) 50%
- C) 90.2%
- D) 98%

20) Humans have ____ chromosomes, whereas chimpanzees, gorillas, and orangutans have ____ chromosomes.

- A) 46 46
- B) 48 48
- C) 46 48
- D) 48 46
- e) 48 49

21) Human chromosome 2 is believed to have come from...

- A) Fusion of two smaller chromosomes
- B) Mutation of chimpanzee chromosome 2
- C) Mutation of Gorilla chromosome 2
- D) Division of one large ancestral chromosome
- E) Amazon prime

22) The term ____ means genes that are not functioning but that are similar in sequence to functioning genes found elsewhere in the genome or in the genomes of other species.

- A) Pseudogenes
- B) Centrosomes
- C) Transposons
- D) Proto-oncogenes

23) In the evolution lecture, we discussed that one type of evidence that supports the theory of evolution is that there are several pseudogenes (non-functioning genes) that are shared by humans and chimpanzees. The pseudogenes that are shared by humans and chimpanzees

- A) Affect brain size
- B) Encode proteins that bind to the pseudogene itself
- C) Can become functional when transferred into gorilla sperm or egg cells
- D) Have the same mutations as one another

Answers to review questions:

- 1) B
- 2) A
- 3) D
- 4) A
- 5) C
- 6) B

- 7) A
- 8) B
- 9) A
- 10) D
- 11) A
- 12) A
- 13) D
- 14) D
- 15) B
- 16) B
- 17) B
- 18) D
- 19) D
- 20) C
- 21) A
- 22) A
- 23) D