

CHAPTER 2 HUMAN EVOLUTION

True-False Questions

1. Origin myths account for the ways in which supernatural forces and beings fashioned the world and all the living things.
2. In the religious tradition of Taoism, the spiritual and material sources for the origins of humans are the opposite forces of *yin* (female) and *yang* (male).
3. The theory of natural selection was arrived at simultaneously and independently by two different scholars.
4. Charles Darwin can be considered an "armchair biologist" because his theories are based on the fieldwork of other researchers.
5. The process of natural selection has been tested experimentally.
6. The order Primates, to which humans belong, arose about 67 million years ago.
7. It has been estimated that humans possess in the neighborhood of 1,000,000 genes.
8. Monkeys, apes, and humans are all classified as anthropoids.
9. "Lucy" is an early hominid known scientifically as *Australopithecus afarensis*.
10. Scientific evidence indicates that the earliest hominids were not bipedal.
11. According to the fossil evidence, the first hominids to migrate out of Africa were the Neandertals.
12. One factor that contributed to the demise (extinction) of the Neandertals was the fact that dinosaur hunting was extremely dangerous and many individuals were killed in the pursuit of these animals.
13. The replacement model or "Eve Hypothesis" suggests that modern *Homo sapiens* evolved in Africa and then migrated to other areas of the world, replacing the indigenous populations such as the Neandertals.
14. Burins are special projectile points for hunting large game like mammoths.
15. Upper Paleolithic artisans made stone tools in distinctive styles that vary from region to region.
16. Paleolithic hunters and gatherers lived mostly in marginal areas, such as dry desert regions.
17. Upper Paleolithic people gathered plants to supplement their food resources.
18. The Cro-Magnon skeletal remains have been identified as a distinct race of human beings.
19. Cro-Magnon people were the first humans to domesticate cattle and sheep.
20. Cro-Magnon people had the technology to start a fire whenever one was needed.
21. Upper Paleolithic people of Europe produced ivory sculptures and mural paintings.

22. During the Upper Paleolithic period, modern *Homo sapiens* migrated throughout the world, including North and South America and Australia.
23. *Homo erectus* was the first hominid species to intentionally bury their dead.
24. Neandertals had a much reduced cranial capacity and intellect compared to modern humans.
25. It is likely that only a few genes are involved in determining skin color.
26. On any continent, the people living nearest the equator are the most likely to have dark skin.
27. Ethnic prejudice or racism based on the belief in the inferiority or superiority of a particular group is unjustifiable, not only morally but also scientifically.

Multiple Choice Questions

28. Most cultures have developed sophisticated ideas and myths to provide answers to fundamental questions such as: "Who are we?", "Where did we come from?", and "Why are we here?" These conceptual frameworks that present the universe as an orderly system and answer these basic questions are called _____.
 - A. analogs
 - B. cosmologies
 - C. paradigms
 - D. apologies
29. The theory of evolution by natural selection was proposed by:
 - A. Copernicus and Galileo
 - B. Thales of Miletus
 - C. Darwin and Wallace
 - D. Darwin and Mendel
 - E. Johanson and Lucy
30. Individuals who are born with variations or traits that make them better able to compete in the struggle for life are the ones that survive and pass on traits to their offspring. This process is called:
 - A. random choice
 - B. spontaneous preference
 - C. organic change
 - D. natural selection
 - E. biotic metamorphosis
31. Respond to this hypothetical example of evolution: A population of peppered moths contains individuals ranging from ones that are mostly black to ones that are mostly white. The moths that are easily seen on the bark of trees get eaten by birds. If soot from coal-burning factories makes tree trunks darker in color, then there will be:
 - A. no change in color variation among peppered moths
 - B. more light-colored peppered moths than dark ones
 - C. an increase in the population of moth-eating birds
 - D. more dark-colored peppered moths than light ones

32. By far, the major characteristic that identifies hominids as a distinct group is:
- A. tool use
 - B. bipedalism
 - C. large brain size
 - D. meat eating
33. The fossil "Lucy" is most similar to modern chimpanzees with respect to:
- A. the ability to walk upright
 - B. cranial capacity
 - C. amount of body hair
 - D. body size
34. During the _____ stage of evolution, hominids became efficient hunters, were probably able to engage in cooperative activities, migrated out of Africa, and their brains increased in size (range 775-1225 cc).
- A. *Homo sapiens*
 - B. *Australopithecus*
 - C. *Homo habilis*
 - D. *Homo erectus*
 - E. Neandertal
35. The earliest stone tools, which have been found in south and east Africa, are called _____ tools.
- A. Oldowan
 - B. Acheulian
 - C. Mousterian
 - D. composite
 - E. Habilian
36. The first hominid to take advantage of the controlled usage of fire was:
- A. *Homo sapiens*
 - B. *Australopithecus afarensis*
 - C. *Homo erectus*
 - D. *Homo habilis*
 - E. *Australopithecus boisei*
37. The Acheulian stone tool technology is associated with which early hominid?
- A. Neandertals
 - B. *Australopithecus robustus*
 - C. *Homo habilis*
 - D. *Homo erectus*
 - E. *Australopithecus africanus*
38. One of the most important tool types invented by *Homo erectus* was the:
- A. Mousterian hammerstone
 - B. Clovis projectile point
 - C. Neolithic grinding stone
 - D. Acheulian hand axe

39. The stone tool industry associated with Neandertal populations was called the:
- A. Oldowan complex
 - B. Mousterian tradition
 - C. Acheulian technology
 - D. chopper tool system
 - E. composite tool tradition
40. The climate characteristic of environments occupied by Neandertals was:
- A. hot
 - B. warm
 - C. temperate
 - D. cold
41. Fossil and archaeological evidence suggests that the first hominids to practice intentional burial of their dead were:
- A. modern Upper Paleolithic *Homo sapiens*
 - B. *Homo erectus*
 - C. Neandertals
 - D. *Homo habilis*
42. The remains of four individuals, one of whom appears to have been surrounded by a bed of flowers, represent the first evidence of intentional burial. They were found at an archaeological site in:
- A. England
 - B. Mexico
 - C. China
 - D. Iraq
43. Evidence suggesting that there were religious beliefs among Neandertals includes:
- A. cave paintings of supernatural beings
 - B. small chambers in the far recesses of caves that contained "religious objects," primarily clay figures of gods and goddesses
 - C. stone-lined rectangular pits containing dozens of cave bear skulls
 - D. burial sites
44. The _____ model of hominid evolution suggests that the gradual evolution of *Homo erectus* into modern human (*Homo sapiens*) populations took place in different regions of the Old World, not in one area of the world.
- A. multiregional
 - B. replacement
 - C. "Garden of Eden"
 - D. "Eve Hypothesis"
 - E. "Sapientization"
45. The term "Paleolithic" also means:
- A. "Old Stone Age"
 - B. "ancient knowledge"
 - C. "before Adam"
 - D. "cave people"

46. The most important technological development in stone tool production for the Upper Paleolithic period was the ability to make:
- A. sharpened cores
 - B. long, narrow blades
 - C. scraping tools
 - D. hand axes
47. Archaeologists believe that the first humans came to the New World from _____.
- A. Asia
 - B. Australia
 - C. Europe
 - D. Africa
48. The Upper Paleolithic period, which dates from about 40,000 to 10,000 years ago, was characterized by:
- A. big game hunting
 - B. blade tools of many traditions
 - C. the invention of composite tools
 - D. cave art
 - E. all of these choices
49. Upper Paleolithic hunters increased the power and accuracy of their projectiles by using:
- A. slingshots
 - B. spear throwers
 - C. bows and arrows
 - D. stone projectile points
50. The term "composite tool" refers to an artifact made by:
- A. firing clay into a hard material
 - B. using bone or antler to remove thin flakes
 - C. putting two or more materials together
 - D. several different people
51. At the 15,000-year-old site at Mezirich in the Ukraine, archaeologists have excavated the remains of five shelters made from:
- A. rough stone slabs
 - B. blocks of marble
 - C. tree trunks
 - D. mammoth bones
52. The term "archaeological culture" refers to:
- A. what archaeologists do to investigate the past
 - B. expressions of ethnic identity in material remains
 - C. variation in Upper Paleolithic technologies
 - D. prehistoric sculpture and cave painting

53. An archaeologist who wanted to understand the lifestyle and social organization of Upper Paleolithic peoples would get the most useful information by studying:
- A. the habits of bears, elephants, and other animals they hunted
 - B. ethnicity in modern European populations that are descended from them
 - C. the characteristics of modern hunting and gathering peoples
 - D. mechanical properties of stone used for making tools
54. Evidence for the lifestyle of Cro-Magnon people comes from:
- A. France
 - B. Iraq
 - C. East Africa
 - D. China
55. Colorful paintings of bison, deer, and other animals in caves were made by:
- A. Neandertals
 - B. *Homo erectus*
 - C. modern *Homo sapiens*
 - D. australopithecines
56. Skin color, which has been used extensively in racial classifications, has been shown to be responsive to different environmental factors, making it of little use in categorizing humans into races. Some of the environmental factors that influence skin pigmentation include:
- A. the amount of ultraviolet radiation and cold
 - B. the amount of carbohydrates versus proteins that are in the diet
 - C. the need for natural camouflage from predators
 - D. iron and zinc compounds in the soil

Essay Questions

57. What is natural selection and how does it operate/work? Give an example of natural selection in action.
58. Can scientific creationism be considered true science? Why or why not? What are the shortcomings of creationism? How does creationism conflict with the scientific method?
59. Compare and contrast the multiregional and replacement models for the spread of modern *Homo sapiens*. What are the testable implications of each?
60. How was the material culture of *Homo sapiens* affected by climatic change?
61. Who were the Neandertals? When and where did they live? What do we know about their belief systems?
62. What did the people of the Upper Paleolithic period eat and how did they obtain this food?
63. How did the culture of the Upper Paleolithic period differ from what came before? Discuss the specific innovations of this period.
64. What made *Homo erectus* different from earlier members of the genus *Homo*?

65. In your opinion, what would have been the principal factors responsible for gradual increases in the size of human brains?
66. How can we explain the variation in physical characteristics of modern humans? How ancient are the differences that we see in modern populations?
67. How does the famous fossil named “Lucy” fit into theories of human evolution?
68. Should contemporary models of human evolution be classified as origin myths? Why, or why not?
69. In your own words, explain what is meant by the following terms: natural selection, adaptation, and evolution.
70. A new fossil discovery by Maeve Leakey has caused rethinking of early hominid evolution. Discuss *Kenyanthropus platyops* and state your opinion on where this discovery may fit into the hominid evolutionary tree.
71. Describe the specific changes in chipped stone tools that characterized the evolution of technology from the Oldowan to the Acheulian, Mousterian, and Upper Paleolithic periods.
72. Using specific examples, describe the nature of Acheulian culture. What kind of evidence do we have for diet and daily activities?
73. What were the principal technological innovations associated with the appearance of modern *Homo sapiens*? What do they tell us about the culture of these people?
74. What do the changes in stone tools over time reveal about changes in the humans who were making them? How were the styles of tools and their methods of manufacture affected by changes in human behavior?
75. When was North America first populated and by whom? What kind of archaeological evidence do we have for the first Native American?

Answer Key with Page Numbers

- | | | |
|----------|----------|----------|
| 1. T 20 | 20. T 35 | 39. B 30 |
| 2. T 20 | 21. T 35 | 40. D 30 |
| 3. T 21 | 22. T 35 | 41. C 30 |
| 4. F 22 | 23. F 31 | 42. D 31 |
| 5. T 27 | 24. F 31 | 43. D 31 |
| 6. T 24 | 25. T 37 | 44. A 31 |
| 7. F 23 | 26. T 36 | 45. A 33 |
| 8. T 24 | 27. T 37 | 46. B 33 |
| 9. T 28 | 28. B 20 | 47. A 35 |
| 10. F 28 | 29. C 21 | 48. E 35 |
| 11. F 29 | 30. D 22 | 49. B 33 |
| 12. F 31 | 31. D 22 | 50. C 33 |
| 13. T 32 | 32. B 24 | 51. D 33 |
| 14. F 33 | 33. B 28 | 52. B 34 |
| 15. T 33 | 34. D 29 | 53. C 34 |
| 16. F 33 | 35. A 28 | 54. A 34 |
| 17. T 33 | 36. C 29 | 55. C 35 |
| 18. F 34 | 37. D 29 | 56. A 36 |
| 19. F 34 | 38. D 29 | |