This timeline shows the effects of animal testing in medicine and the animals upon which the studies were conducted (indicated in italics).

<table>
<thead>
<tr>
<th>Period</th>
<th>Procedure</th>
<th>Description</th>
<th>Used Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900s</td>
<td>Corneal transplants</td>
<td>The first successful human transplant was of the cornea, the clear covering of the eye.</td>
<td>Rabbits</td>
</tr>
<tr>
<td>1910s</td>
<td>Blood transfusion</td>
<td>Research that led to the safe storage and routine transfusion of sterile, compatible blood.</td>
<td>Dogs, guinea pigs, rabbits</td>
</tr>
<tr>
<td>1920s</td>
<td>Insulin for diabetes</td>
<td>Before the development of insulin, Type 1 diabetes was a death sentence.</td>
<td>Dogs, rabbits, mice</td>
</tr>
<tr>
<td>1930s</td>
<td>Modern anesthetics</td>
<td>Anesthetics were first used for short surgical procedures in the mid 1930s. Modern anesthetics began to be developed from the 1950s.</td>
<td>Rats, rabbits, dogs, cats, monkeys</td>
</tr>
<tr>
<td>1930s</td>
<td>Diphtheria vaccine</td>
<td>Before the antitoxin and vaccine, this disease was serious and fatal for one in ten.</td>
<td>Guinea pigs, rabbits, horses, monkeys</td>
</tr>
<tr>
<td>1930s</td>
<td>Anticoagulants</td>
<td>Anticoagulants prevent potentially fatal blood clots.</td>
<td>Rabbits, guinea pigs, mice, dogs</td>
</tr>
<tr>
<td>1940s</td>
<td>Kidney dialysis</td>
<td>Dialysis saves hundreds of thousands with kidney failure until a kidney transplant.</td>
<td>Guinea pigs, rabbits, dogs, monkeys</td>
</tr>
<tr>
<td>1940s</td>
<td>Heart-lung machine for open-heart surgery</td>
<td>Open-heart surgery for severe heart conditions would be impossible without the heart-lung machine to take over circulation and oxygenation of the blood.</td>
<td>Dogs</td>
</tr>
<tr>
<td>1950s</td>
<td>Hip replacement surgery</td>
<td>Failing hips, and other joints, can be replaced using artificial joints made of strong, inert material.</td>
<td>Dogs, sheep, goats</td>
</tr>
<tr>
<td>1950s</td>
<td>Polio vaccine</td>
<td>The vaccine eradicated polio in the western world.</td>
<td>Mice, monkeys</td>
</tr>
<tr>
<td>1950s</td>
<td>Drugs for high blood pressure</td>
<td>These medicines also reduce the risk of stroke, heart and kidney disease.</td>
<td>Rats, mice, cats, dogs</td>
</tr>
<tr>
<td>1950s</td>
<td>Replacement heart valves</td>
<td>Artificial heart valves give new life to patients—some 6,000 a year.</td>
<td>Dogs, calves, rabbits, guinea pigs, rats</td>
</tr>
<tr>
<td>1960s</td>
<td>Coronary bypass operations</td>
<td>Healthy arteries can be transplanted from the leg to replace blocked heart arteries. This operation is now routine.</td>
<td>Dogs</td>
</tr>
<tr>
<td>1960s</td>
<td>Heart transplants</td>
<td>The first successful heart transplant was in 1967, building on experience gained in animal experiments.</td>
<td>Dogs</td>
</tr>
</tbody>
</table>
1. According to the timeline, mice have been used in laboratory testing exclusively for 
   (A) surgical procedures on the heart 
   (B) injecting drugs to test reactions 
   (C) chemotherapy to treat cancer 
   (D) testing the effectiveness of vaccines 
   (E) procedures which require a small animal 

2. The decades of the 1940s, 1950s, and 1960s are significant for 
   (A) developing vaccines to treat diseases 
   (B) focusing on non-surgical procedures 
   (C) making most gains in treating heart diseases 
   (D) being the only decade to use dogs for research 
   (E) proving that surgery would not be possible without anesthetics
The following are well-known quotes by famous people collected on a personal webpage.

Not to hurt our humble brethren (the animals) is our first duty to them, but to stop there is not enough. We have a higher mission—to be of service to them whenever they require it... If you have men who will exclude any of God’s creatures from the shelter of compassion and pity, you will have men who will deal likewise with their fellow men.

—Saint Francis of Assisi (mystic and preacher)

Compassion for animals is intimately connected with goodness of character; and it may be confidently asserted that he who is cruel to animals cannot be a good man.

—Arthur Schopenhauer (philosopher)

When a man has pity on all living creatures, then only is he noble.

—Buddha (founder and spiritual leader of Buddhism)

3. **By calling the animals “brethren,” St. Francis uses**

   (A) irony  
   (B) simile  
   (C) metaphor  
   (D) hyperbole  
   (E) personification

4. **The words “to hurt,” “to them,” and “to stop” (line 1) function respectively as**

   (A) infinitive phrase, prepositional phrase, and infinitive phrase  
   (B) gerund phrase, prepositional phrase, and infinitive phrase  
   (C) prepositional phrase, infinitive phrase, and prepositional phrase  
   (D) infinitive phrase, gerund phrase, and prepositional phrase  
   (E) gerund phrase, infinitive phrase, and gerund phrase

5. **The antecedent of “them” (line 2) is**

   (A) animals (line 1)  
   (B) enough (line 2)  
   (C) mission (line 2)  
   (D) service (line 2)  
   (E) creatures (line 3)

6. **The main sound device which adds to the rhythmic sound of the Schopenhauer quotation is**

   (A) rhyme  
   (B) meter  
   (C) assonance  
   (D) alliteration  
   (E) onomatopoeia
7. **The main purpose of the Buddha quotation is to**

(A) convince people to value animals’ lives
(B) elevate human life above all other forms
(C) illustrate the similarity of humans and God
(D) highlight one of humankind’s best qualities
(E) assert that animals have basic rights

9. **The effect of the inversion in the Buddha quotation is to emphasize the**

(A) adverb “only”
(B) predicate adjective “noble”
(C) adverb “then”
(D) linking verb “is”
(E) subject “he”

8. **The syntactical device Buddha employs in this quotation is**

(A) anaphora
(B) inversion
(C) repetition
(D) antithesis
(E) parallelism

### Source C

**Frank and Ernest** cartoon by Tom Thaves. Copyright © 1997 by Tom Thaves. Reprinted with permission of the artist.

The following is a syndicated comic strip distributed to newspapers nation-wide.

10. **This cartoon is characterized mainly by**

(A) bias
(B) data
(C) allusion
(D) dialogue
(E) definition

11. **The tone of this cartoon can best be described as**

(A) frustrated
(B) fanatical
(C) frivolous
(D) intense
(E) ironic
The following excerpt is from the CEO of the Australian Association for Humane Research, a group opposed to animal testing.

Whenever a company makes a new cosmetic or household product, like lipstick, shampoo, or oven cleaner, before they can sell it to the public they have to prove that it is safe to use. Some companies try to prove it is safe by testing it on animals.

The Draize test is usually performed on rabbits because they are very docile* and have large eyes. The product which is being tested is dripped into the rabbits’ eyes, and they are watched for a number of days to see how much damage is done to the eye. You know what it’s like when you have something in your eye that is irritating. Your eyes start to water. Unfortunately, rabbits do not have tear ducts like us and are not able to wash the substance out of their eye, and so it does more damage. Many of the rabbits go blind.

12. **The passage achieves its effect chiefly through**

   (A) ethical appeals  
   (B) classification  
   (C) logical appeals  
   (D) cause/effect  
   (E) emotional appeals

13. **The intended effect of this passage on the audience would be to produce**

   (A) criticism of all animal testing  
   (B) empathy for the plight of the rabbits  
   (C) detailed knowledge of this particular test  
   (D) support for using animals to test products  
   (E) awareness of the need for animal testing

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*docile* (adjective): submissive or easily managed.
The following is excerpted from a website.

According to the FRAME website (Fund for Replacement of Animals in Medical Experiments), experiments are conducted on animals by scientists for several reasons. First, the knowledge gained from these tests allows for doctors to treat patients using new biomedical products. Next, diseases are able to be diagnosed in new ways. In addition, new surgical procedures and treatments are found upon animal research. Finally, the new products need to be tested on animals before going on the market for public consumption. Although this is the basis for animal experimentation, scientists and researchers believe the public has a false conception of the use of animals.

Researchers and scientists claim that several medical breakthroughs would never have been discovered without animal experimentation. They argue polio could have spread over the continent…the entire world, if it had not been for the vaccine which was tested on animals. William Newsome of Stanford’s Medical Center explains that “if people had stopped (animal research) in 1900, people would still be dying of diabetes and crippled from polio. There would be no such thing as open-heart surgery” (quoted in Morrison).

14. **The author uses passive voice in “experiments are conducted” (line 2) and “diseases are able to be diagnosed” (line 4) for all the following reasons EXCEPT**

(A) active voice would state who conducts the experiments and diagnoses the diseases
(B) passive voice shifts the focus to the experiments and the diseases
(C) active voice would place responsibility for the experiments and diagnoses on the people conducting them
(D) passive voice allows the humans involved to remain in the background
(E) active voice is not as straightforward as passive voice since the subject is not performing the action

15. **The logical order and structure of the sentences in the first paragraph shift with the word**

(A) first (line 3)
(B) next (line 4)
(C) finally (line 5)
(D) market (line 6)
(E) although (line 7)

16. **The word in the first paragraph for which the reference is most unclear is**

(A) several (line 2)
(B) these (line 3)
(C) diseases (line 4)
(D) found (line 5)
(E) this (line 7)
17. The writer persuades through logic by using all of the following techniques EXCEPT

(A) citing experts knowledgeable about medical research
(B) offering justifications for conducting animal research
(C) listing diseases cured because of animal experimentation
(D) creating sympathy for those suffering from polio and diabetes
(E) acknowledging that the public has a false conception of animal research

18. The best inference a reader could make about the last sentence is that

(A) open-heart surgery is a dangerous procedure
(B) open-heart surgery can repair a diseased heart
(C) most people have some degree of heart disease
(D) heart disease poses a greater health risk than polio
(E) animal testing does not help humans with heart disease

19. The website’s address suggests that this source

(A) endorses the need for animal testing
(B) opposes using animals for testing cosmetics
(C) accepts the fact that human diseases can be cured
(D) objects to using animals for testing medical products
(E) believes that humans, rather than animals, should be used for testing