

## English ECAT Pre Engineering Chapter 8 Comprehension

Sr	Questions	Answers Choice
1	<p>When we are young, we learn that tigers and sharks are dangerous animals. We might be scared of them because they are big and powerful. As we get older, however, we learn that sometimes the most dangerous animals are also the smallest animals. In fact, the animal that kills the most people every year is one that you have probably killed yourself many times: the mosquito.</p> <p>While it may seem that all mosquitoes are biters, this is not actually the case. Male mosquitoes eat plant nectar. One the other hand, female mosquitoes feed on animal blood. They need this blood to live and produce eggs. When a female mosquito bites a human being, it transmits a small amount of saliva into the blood. The saliva may or may not contain a deadly disease. The result of the bite can be as minor as an itchy bump or as serious as death.</p> <p>Because a mosquito can bite many people in the course of its life, it can carry diseases from one person to another very easily. Two of the most deadly diseases carried by mosquitoes are malaria and yellow fever. More than 700 million people become sick from these diseases every year. At least 2 million of these people will die from these diseases.</p> <p>Many scientists are working on safer and better ways to kill mosquitoes, but so far, there is no sure way to protect everyone in the world from their deadly bites. Mosquito nests can be placed over beds to protect people against being bitten. These nets help people stay safe at night, but they do not kill any mosquitoes. Mosquitoes have many natural enemies like bats, birds, dragonflies, and certain kinds of fish. Bringing more of these animals into places where mosquitoes live might help to cut down the amount of mosquitoes in that area. This is a natural solution, but is does not always work very well. Mosquitoes can also be killed with poisons or sprays. Even though these sprays kill mosquitoes, they may also harm other plants or animals.</p> <p>Although mosquitoes may not seem as scary as larger, more powerful animals, they are far more dangerous to human beings. But things are changing. It is highly likely that one day scientists will find a way to keep everyone safe from mosquitoes and the diseases they carry.</p> <p>According to the author, some people are more afraid of tigers and sharks than mosquitos because tigers and sharks</p>	<p>A. Kill more people than mosquitoes  <b>B. Are big and powerful</b>            C. Are found all over the world            D. Have no natural enemies</p>
2	<p>Paul's wife knows Paul loves to read cookbooks. She decides to get him one for his birthday. Paul tells her he will try to make a new recipe for three days in a row. On Monday, Paul makes blueberry pancakes for breakfast. He gets the blueberries from the farmers' market. On Tuesday, Paul makes beef soup for dinner. He puts in cubes of beef, carrots, and onions. The recipe calls for cream, but Paul does not cream. He uses water instead. On Wednesday, Paul makes a tomato salad with cucumbers and onions. He picks the cucumbers and tomatoes from his garden. He likes this dish best. It was also the easiest for him to make.</p> <p>What does Paul say he will do?</p>	<p>A. Become a chef            B. Grow his own food            C. Cook every recipe in a week  <b>D. Try a new recipe for three days in</b></p>
3	<p>On which project will the author need to use the most tools?</p>	<p>A. fixing the washing machine  <b>B. fixing the back porch</b>            C. both projects need the same number of tools            D. neither project needs any tools</p>

On January 3, 1961, nine days after Christmas, Richard Legg, John Byrnes, and Richard McKinley were killed in a remote desert in eastern Idaho. Their deaths occurred when a nuclear reactor exploded at a top-secret base in the National Reactor Testing Station (NRTS). Official reports state that the explosion and subsequent reactor meltdown resulted from the improper retraction of the control rod. When questioned about the events that occurred there, officials were very reticent. The whole affair, in fact, was discussed much, and seemed to disappear with time.

In order to grasp the mysterious nature of the NRTS catastrophe, it help to know a bit about how nuclear reactors work. After all, the generation of nuclear energy may strike many as an esoteric process. However, given its relative simplicity, the way in which the NRTS reactor functions is widely comprehensible. In this particular kind of reactor, a cluster of nine-ton uranium fuel rods are positioned lengthwise around a central control rod. The reaction begins with the slow removal of the control rod, which starts a controlled nuclear reaction and begins to heat the water in the reactor. This heat generates steam, which builds pressure inside the tank. As pressure builds, the steam looks for a place to escape. The only place this steam is able to escape is through the turbine. As it passes through the turbine on its way out of the tank, it turns the giant fan blades and produces energy.

4

On the morning of January 3, after the machine had been shut down for the holidays, the three men arrived at the station to restart the reactor. The control rod needed to be pulled out only four inches to be reconnected to the automated driver. However, records indicate that Byrnes yanked it out 23 inches, over five times the distance necessary. In milliseconds the reactor exploded. Legg was impaled on the ceiling; he would be discovered last. It took one week and a lead-shielded crane to remove his body. Even in full protective gear, workers were only able to work a minute at a time. The three men are buried in lead-lined coffins under concrete in New York, Michigan, and Arlington Cemetery, Virginia.

- A. The turning of the turbine blades
- B. The escape of pressurized steam
- C. He removal of the control rod
- D. The positioning of the uranium fuel rods

The investigation took nearly two years to complete. Did Byrnes have a dark motive? Or was it simply an accident? Did he know how precarious the procedure was? Other operators were questioned as to whether they knew the consequences of pulling the control rod out so far. They responded "Of course! We often talked about what we would do if we were at a radar station and the Russians came.

"We'd yank it out."

Official reports are oddly ambiguous, but what they do not explain, gossip does. Rumors had it that there was tension between the men because Byrnes suspected the other two of being involved with his young wife. There is little doubt than he, like the other operators, knew exactly what would happen when he yanked the control rod.

According to the paragraph 2, which of the following is directly responsible for energy production?

5

The history of civilization shows how man always has to choose between making the right and wrong use of the discoveries of science. This has never been more true than in our own age. In a brief period amazing discoveries have been made and applied to practical purpose.

It would be ungrateful not to recognize how immense are the boons which science has given to mankind. It has brought within the reach of multitudes benefits and advantages which only a short time ago where the privilege of the few. It has shown how malnutrition, hunger and disease can be overcome. It has not only lengthened life but it has depended to his quality. Fields of knowledge, experience and recreation open in the past only to few, have been thrown open to million. Through the work of science the ordinary man today has been given the opportunity of a longer and fuller life than was ever possible to his grandparents.

- A. In a brief period
- B. In a long period
- C. In our forefather's age
- D. In centuries

Amazing discoveries of science have been made:

6

Democratic societies from the earliest times have expected their governments to protect the weak against the strong. No 'era of good feeling' can justify discharging the police force or giving up the idea of public control over concentrated private wealth. On the other hand, it is obvious that a spirit of self – denial and moderation on the part of those who hold economic power will greatly soften the demand for absolute equality. Men are more interested in freedom and security than in an equal distribution of wealth. The extent to which Government must interfere with business, therefore, is not exactly measured by the extent to which economic power is concentrated into a few hands. The required degree of government interference depends mainly on whether economic powers are oppressively used, and on the necessity of keeping economic factors in a tolerable state of balance.

- A. Make the rich and the poor happy
- B. Curb the accumulation of wealth in a few hands
- C. Monitor science and technology
- D. Deploy the police force wisely

However, with the necessity of meeting all these dangers and threats to liberty, the powers of government are unavoidably increased, whichever political party may be in office. The growth of government is a necessary result of the growth of technology and of the problems that go with the use of machines and science. Since the government in our nation, must take on more powers to meet its problems, there is no way to preserve freedom except by making democracy more powerful.

The growth of government is necessitated to

Fleas are perfectly designed by nature to feast on anything containing blood. Like a shark in the water or a wolf in the woods, fleas are ideally equipped to do what they do, making them very difficult to defeat. The bodies of these tiny parasites are extremely hardy and well-suited for their job.

A flea has a very hard exoskeleton, which means the body is covered by a tough, tile-like plate called a sclerite. Because of these plates, fleas are almost impossible to squish. The exoskeletons of fleas are also waterproof and shock resistant, and therefore fleas are highly resistant to the sprays and chemicals used to kill them.

Little spines are attached to his plate. The spine the flea scurries through an animal's fur in – search of grooming pet tries to pull a flea off through the hair coat, these spines will extend and stick to the fur like Velcro.

Fleas are some of the best jumpers in the natural world. A flea can jump seven inches, or 150 times its own length, either vertically or horizontally. An equivalent jump for a person would be 555 feet, the height of the Washington Monument. Fleas can jump 30,000 times in a row without stopping, and they are able to accelerate through the air at an incredibly high rate – a rate which is over ten times what humans can withstand in an airplane.

Fleas have very long rear legs with huge thigh muscles and multiple joints. When they get ready to jump. They fold their long legs up and crouch like a runner on a starting block. Several of their joints contain a protein called resilin, which helps catapult fleas into the air as they jump, similar to the way a rubber band provides momentum to a slingshot. Outward facing claws on the bottom of their legs grip anything they touch when they land.

- A. I only
- B. I and II only
- C. II and III only
- D. I, II and III

The adult female flea mates after her first blood meal and begins producing eggs in just 1 to 2 days. One flea can lay up to 50 eggs in one day and over 2,000 in her lifetime. Flea eggs can be seen with the naked eye, but they are about the size of a grain of salt. Shortly after being laid, the eggs begin to transform into cocoons. In the cocoon state, fleas are fully developed adults, and will hatch immediately if conditions are favorable. Fleas can detect warmth, movement, and carbon dioxide in exhaled breath, and these three factors stimulate them to emerge as new adults. If the flea does not detect appropriate conditions, it can remain dormant in the cocoon state for extended periods. Under ideal conditions, the entire life cycle may only take 3 weeks, so in no time at all, pets and homes can become infested.

Because of these characteristics, fleas are intimidating opponents. The best way to control fleas, therefore, is to take steps to prevent an infestation from ever occurring.

Fleas are difficult to squish because they have

I Sclerites

II Tough spines

III Resilin in their joints

What are good parts of our civilization? First and foremost there are order and safety. If

today I have a quarrel with another man, I do not get beaten merely because I am physically weaker and he can knock me down. I go to law and the law will decide as fairly as it can between the two of us. Thus in disputes between man and man. Right has taken the place might. More-over, the law protects me from robbery and violence. Nobody may come and break into my house, steal my books or run off with my children. Of course, there are burglars, but they are very rare and the law punishes them whenever it catches them.

It is difficult for us to realize how much this safety means. Without safety those higher activates of mankind which make up civilization could not go on. The inventor could not invent, the scientist find out or the artist make beautiful things. Hence, order and safety, although they are not themselves civilization, are things without which civilization could be impossible. They are as necessary to our civilization as the air we breathe is to us; and we have grown so used to them that we do not notice them any more than we notice the air.

The first and foremost good parts of civilization are:

- A. Order and insecurity
- B. Only insecurity
- C. Order and safety
- D. Insecurity and lawlessness

Gold used in jewelry is mixed with harder metals to add strength and durability. The metals added can also be used to change gold's color, giving it a for the natural yellow tone of pure gold. Mixtures like these, of less costly metals with more valuable ones, are called alloys. Copper and silver are the most common metals mixed with gold to make yellow gold jewelry. White gold is usually made with an alloy of gold and nickel. The measure of is called gold's purity is called a karat. The higher the karat rating, the higher the amount of pure gold. 24

- A. Although gold is very valuable, it is also very expensive

- 9 karat is pure gold, 18 karat is 75% pure gold, 14 karat is 58.5% pure gold, and 9 karat is 37.5% pure gold. All other things being equal, the higher the percentage of pure gold used in the alloy, the more valuable and expensive the jewelry will be. Gold jewelry pieces are usually stamped with a marking to identify the karat amount. White gold that is 24K is too soft for jewelry, 18K, 14K and 9K gold are all appropriate for jewelry, and they all make pieces that look great and wear beautifully.
- B. Gold jewelry is stamped with its karat weight  
C. Gold jewelry is made using alloys  
D. Colored gold is more valuable than white gold

Question:

Which of the following statements best captures the main idea of this passage?

- 10 Q.4 Educational planning should aim at meeting the educational needs of the entire population of all age groups while the traditional structure of education as a three layer hierarchy from the primary stage to the university represents the core we should not overlook the periphery which is equally important Under modern conditions workers need to rekindle or renew their enthusiasm or strike out in a new direction or improve their skills as much as any university professor the retired and the aged have their needs as well Educational planning in their words should take care of the needs of everyone. Our structures of education have been built up on the assumption that there is a terminal point to education This basic defect has become all the more harmful today. A UNESCO report entitled Learning to be prepared by Edgar Faure and others in 1973 asserts that the education of children must prepare the future should consist of modules with different kinds of functions serving a diversity of constituent And performance not the period of study should be the basis for credentials the writing is already on the wall In view of the fact that the significance of a commitment of lifelong learning and lifetime education is being discussed only in recent years even in educationally advanced countries the possibility of the idea becoming an integral part of the idea becoming an integral part of educational thinking seems to be a far cry For to move in that direction means such more than some simple rearrangement of the present organization of education but a good beginning can be made by developing open university programs for older learners of different categories and introducing extension services in the conventional colleges and schools also these institutions should learn to cooperate with the numerous community municipal recreational programs health services etc.
- A. As old as traditional education  
B. Still in formative stages  
C. In vogue in advanced countries  
D. Not practical
- i. According to the author the concept of lifetime education is

- 11 Paul's wife knows Paul loves to read cookbooks. She decides to get him one for his birthday. Paul tells her he will try to make a new recipe for three days in a row. On Monday, Paul makes blueberry pancakes for breakfast. He gets the blueberries from the farmers' market. On Tuesday, Paul makes beef soup for dinner. He puts in cubes of beef, carrots, and onions. The recipe calls for cream, but Paul does not cream. He uses water instead. On Wednesday, Paul makes a tomato salad with cucumbers and onions. He picks the cucumbers and tomatoes from his garden. He likes this dish best. It was also the easiest for him to make.
- A. I only  
B. I and II  
C. II and III  
D. I, II and III
- Which ingredients does Paul use to make beef soup?

I Onions

II Potatoes

III cucumber

- 12 The hammer may be oldest tool we have record of. Stone hammers-some of the oldest human artifacts ever discovered-date back as early as 2,600,000 BCE. Not only is the hammer the oldest tool, but it is also the greatest. What makes the hammer so great is its simplicity, power, and usefulness. The structure of the hammer is relatively simple-a fact largely responsible for its early invention and widespread distribution across cultures and geographic regions. The hammer is composed of two main parts: a handle and a head. The handle is used to swing the hammer. The head is used to hit other objects. While the hammer is a very simple tool, it is still able to generate tremendous power. This power results from two factors: the weight of the head, and the speed at which the hammer is swung. Every hammer (though some more than other) has a large distribution of weight at the head. When a hammer is swung, this weight pivots about the hand, which acts as a fulcrum. The handle carries the weight at a distance, acting as a lever arm, so a longer handle means increased speed. The weight of the head together with the speed generated by the lever arm is what gives the hammer so much power. The heavier the head and the faster it is swung, the more power a hammer produces. In addition to the hammer's great power, it also has an exceptionally wide range of useful applications. The purpose of the hammer -- to hit-- is a universal action that can accomplish many tasks. Let's start with the obvious: a hammer can be made to pound nails. But a hammer has many other uses as well. It can break apart hard objects such as brick or concrete. It can bend and shape metal or steel. It can gently tap objects to make small adjustments. It can be used to make sculpture or pottery. It can be used in the hot, harsh business of blacksmithing as well as in delicate operations like crafting jewelry. In times of desperation, it can even be used as a weapon. The hammer truly is a great tool. It is simple, powerful, and useful. A quintessential symbol of labor, the hammer has come to represent hard work and embody the spirit of human industry.
- A. introduction, supporting paragraphs, conclusion  
B. introduction, examples, supporting paragraphs, conclusion  
C. history, examples, conclusion  
D. history, introduction, supporting paragraphs
- Question:
- Which of the following best describes the organization of this passage?

Where does chocolate come from? Believe it or not, it grows on trees. Not as a sweet chocolate candy bar wrapped in foil, but as a cocoa bean. These cocoa beans grow on a cacao tree, which is found in tropical areas such as Central and South America. The fruit of these are called pods, and they are long and hard. Inside the pods is a soft, white pulp that

13

surrounds the thirty or so seeds. These seeds are what we call cocoa beans. They are very hard and bitter to the taste. To make chocolate, people start by carefully taking the beans out of the pods, still covered in the white pulp, and leaving them in a bucket. The bucket is often covered with banana leaves and left for anywhere from a few days to a few weeks. This process is called fermenting. Then the beans are left to dry in the sun. Fermenting and drying the beans makes them less bitter. Then the beans are shipped to a factory to be turned into chocolate. At the factory, beans are roasted in ovens to bring out their flavor. After roasting, the outer covering of the bean is removed. The inner bean is then crushed to form a paste known as chocolate liquor. From this paste, people can either make cocoa powder or the chocolate we buy in stores. To make cocoa powder, the paste is crushed and pressed repeatedly to remove the fat, leaving behind only a dry, ground powder. To make chocolate, people need to add other ingredients to the paste such as milk, sugar, and cocoa butter. They then mix and heat the concoction several times to create a substance we would recognize as chocolate. It may even have fruit, nuts, or candy added to it before it is molded into a shape. Considering all that must happen to turn a bitter cocoa bean into a chocolate bar, a dollar seems like a small price to pay for such a delicious sweet treat.

Question:

Which of the following best describes a 'concoction'?

A. To make the smoothie, Daryl blended strawberries, bananas, yogurt, and juice

B. When Jenna left the room, the pot of milk boiled for twenty minutes before boiling over

C. A sprinkle of powdered sugar on top makes everything sweeter

D. Elaine heated the lasagna, froze it, and then heated it again before serving it two weeks later

14

I am writing in response to the article "Protecting our public spaces" in issue 14, published this spring in it, the author claims that "all graffiti is public spaces." I would like to point out that many people believe that graffiti is an art form that can benefit our public spaces just as much as sculpture, fountains, or other, more accepted art forms.

People who object to graffiti usually do so more because of where it is, not what it is. They argue, as your author does, that posting graffiti in public places constitutes an illegal act of property damage. But the location of such graffiti should not prevent the images themselves from being considered genuine art.

I would argue that graffiti is the ultimate public art form. Spray paint is a medium unlike any other. Though graffiti, the entire world has become a canvas. No one has to pay admission or travel to a museum to see this kind of art. The artists usually do not receive payment for their efforts. These works of art dotting the urban landscape are available, free of charge, to everyone who passes by.

To be clear, I do not consider random words or names sprayed on stop signs to be art. Plenty of graffiti is just vandalism, pure and simple. However, there is also graffiti that is breathtaking in its intricate detail, its realism, or its creativity. It takes great talent to create such involved designs with spray paint.

Are these creators not artists just because they use a can of spray paint instead of a paintbrush, or because they cover the side of a building rather than a canvas?

To declare that all graffiti is vandalism, and nothing more, is an overly simplistic statement that I find out of place in such a thoughtful publication as your magazine. Furthermore, graffiti is not going anywhere, so might as well find a way to live with it and enjoy its benefits. One option could be to make a percentage of public space, such as walls or benches in parks, open to graffiti artists. By doing this, the public might feel like part owners of these works of art, rather than just the victims of a crime.

According to the writer, random words sprayed on stop signs are not

A. Vandalism

B. Art

C. Illegal

D. Creative

Right now, I am looking at a shelf full of relics, a collection of has-beens, old-timers, antiques, fossils. Right now I am lolling at a shelf full of books. Yes that's right. If you have some spare cash (the doing rate is about \$89) and are looking to enhance your reading experience, then I highly suggest you consider purchasing an e-reader. E-readers are replacing the books of old, and I welcome them with open arms (as you should).

If you haven't heard of an e-reader and don't know what it is, then please permit the following explanation. An e-reader is a device that allows you to read e-books. An e-book is a book-length publication in digital form, consisting of text, images, or both, and produced on, published through, and readable on computers or other electronic devices. Sometimes the equivalent of a conventional printed book, e-books can also be born digital. The Oxford Dictionary of English defines the e-book as "an electronic version of a printed book, "but e-book can and do exist without any printed equivalent.

So now you know what an e-reader is. But you still may be wondering why they put printed books to shame. E-readers are superior to printed books because they save space, are environmentally friendly, and provide helpful reading tips and tools that printed books do not.

E-readers are superior to printed books because they save space. The average e-reader can store thousands of digital books, providing a veritable library at your

15

reader can store thousands of digital books, providing a veritable library at your fingertips. What is more, being the size and weight of a thin hardback, the e-reader itself is relatively petite. It is easy to hold and can fit in a pocketbook or briefcase easily. This makes handling ponderous behemoths such as War and Peace, Anna Karenina, and Les Miserables a breeze. Perhaps the only drawback to the space-saving aspect of an e-reader is that it requires you to find new things to put on your shelves.

In addition, e-readers are superior to books because they are environmentally friendly. The average novel is about 300 pages long. So, if a novel is printed 1000 times, it will use 300,000 pieces of paper. That's a lot of paper! If there are about 80,000 pieces of paper in a tree, this means it takes almost 4 trees to make these 1000 books. Now, we know that the average bestseller sells about 20,000 copies per week. That means that it takes over 300 trees each month to sustain this rate. And for the super bestsellers, these figures increase dramatically. For example, the Harry Potter book series has sold over 450 million copies. That's about 2 million trees! Upon viewing these figures, it is not hard to grasp the severe impact of printed books on the environment. Since e-readers use no trees, they represent a significant amount of preservation in terms of the environment and its resources.

Finally, e-readers are superior to books because they provide helpful reading tips and tools that printed books do not. The typical e-reader allows its user to customize letter size, font, and line spacing. It also allows highlighting and electronic bookmarking. Furthermore, it grants users the ability to get an overview of a book and then jump to a specific electronic bookmarking. Furthermore, it grants users the ability to get an overview of a book and then jump to a specific location based on that overview. While these are all nice features, perhaps the most helpful of all is the ability to get dictionary definitions at the touch of a finger. On even the most basic e-reader, users can conjure instant definitions without having to hunt through a physical dictionary.

It can be seen that e-readers are superior to printed books. They save space, are environmentally friendly, and provide helpful reading tips and tools that printed books do not. So what good are printed books? Well, they certainly make nice decorations.

As used in paragraph 3, which of the following describes something that has been "put to shame"?

- A. A dog is left outside on a frigid, deary winter night
- B. Team A defeats Team B in a humiliating rout
- C. Martha is caught stealing at the mall and is arrested in front of a crowd of curious bystanders
- D. The machine has countless moving parts and Dustin has trouble assembling it

16

Philadelphia is a city known for many things. It is where the Declaration of independence was signed in 1776, and it was also the first capital of the United States. But one fact about Philadelphia is not so well-known: it is home to nearly 3,000 murals painted on the sides of homes and buildings around the city. In fact, it is said that Philadelphia has more murals than any other city in the world, with the exception of Rome. How did this come to be?

More than 20 years ago, a New Jersey artist named Jane Golden started a program pairing troubled youth with artists to paint murals on a few buildings around the city. From this small project, something magical happened. The young people involved helped to create magnificent pieces of art, but there were other, perhaps more important benefits. The young people learned to collaborate and get along with many different kinds of people during the various steps required to paint and design a mural. They learned to be responsible, because they needed to follow a schedule to make sure the murals were completed. They also learned to take pride in their community. It is hard for any resident to see the spectacular designs and not feel proud to be a part of Philadelphia.

Take a walk around some of the poorest neighborhoods in Philadelphia, neighborhoods full of broken windows and littered front steps, and you will find beautiful works of art on the sides and fronts of buildings. Of course the murals are not just in poor neighborhoods, but more affluent ones as well. Special buses take tourists to different parts of the city to see the various murals, which range from huge portraits of historical heroes, to cityscapes, to scenes depicting the diverse ethnic groups that call Philadelphia home.

As a result of its success, the mural program created by Jane Golden has now become the nation's largest public art program and a model for troubled youth.

The main focus of the passage is

- A. An art program designed to help troubled youth
- B. The many tourists who come to Philadelphia to see murals
- C. The reasons why Philadelphia is a unique city
- D. How Jane Golden came up with the idea to start a mural program

Chocolate – there's nothing quite like it, is there? Chocolate is simply delicious. What is chocolate? Where does it come from?

Christopher Columbus was probably the first to take cacao beans from the New World to Europe in around 1502. But the history of chocolate goes back at least 4,000 years! The Aztecs, who lived in America, thought that their bitter cacao drink was a **divine** gift from heaven. In fact, the scientist Carolus Linnaeus named the plant

Theobroma, which means “food of the gods”

The Spanish explorer Hernando Cortez went to America in 1519. He visited the Mexican emperor Montezuma. He saw that Montezuma drank cacao mixed with vanilla and spices. Cortez took some cacao home as a gift to the Spanish King Charles. In Spain, people began to drink Cortez’s chocolate in drink with chili peppers. However, the natural taste of cacao was too bitter for most people. To sweeten the drink, Europeans added sugar to the cacao drink. As a sweet drink, it became more popular. By the 17<sup>th</sup> century, rich people in Europe were drinking it.

Later, people started using chocolate in **pastries**, like pies and cakes. In 1828, Dutch chocolate makers started using a new process for removing the fat from cacao beans, and getting to the center of the cacao bean. The Dutch chocolate maker Conrad J. Van Houten made a machine that pressed the fat from the bean. The resulting powder mixed better with water than cacao did. Now, some call van Houten’s chocolate “Dutch chocolate.”

17

It was easy to mix Dutch chocolate powder with sugar. So other chocolate makers started trying new **recipes** that used powdered chocolate. People started mixing sweetened chocolate with cocoa butter to make solid chocolate bars. In 1849, an English chocolate maker made the first chocolate bar. In the 19<sup>th</sup> century, the Swiss started making milk chocolate by mixing powdered milk with sweetened chocolate. Milk chocolate has not changed much since this process was invented.

- A. The Dutch
- B. The Swiss
- C. The English
- D. The Mexicans

Today, two countries – Brazil and Ivory Coast – account for almost half the world’s chocolate. The United States imports most of the chocolate in the world, but the

Swiss eat the most chocolate per person. The most chocolate eaten today is sweet milk chocolate, but people also eat white chocolate and dark chocolate.

Cocoa and dark chocolate are believed to help **prevent** heart attacks, or help keep from happening. They are supposed to be good for the circulatory system. On the other hand, the high fat content of chocolate can cause weight gain, which is not good for people’s health. Other health claims for chocolate have not been proven, but some research shows that chocolate could be good for the brain.

Chocolate is a popular holiday gift. A popular Valentine’s Day gift is a box of chocolate candies with a card and flowers. Chocolate is sometimes given for Christmas and birthdays. Chocolate eggs are sometimes given at Easter.

Chocolate is **toxic** to some animals. An ingredient in chocolate is poisonous to dogs, cats, parrots, small rodents, and some livestock. Their bodies cannot process some of the chemicals found in chocolate. Therefore, they should never be fed chocolate.

Which people eat the most chocolate per person?

The year 2006 was the golden anniversary, or the 50<sup>th</sup> birthday, of the Dwight D. Eisenhower National System of Interstate and Defense Highways. This system, usually referred to as The Interstate Highway System, is a system of freeways named after the U.S. President who supported it. The system is the largest highway system in the world, consisting of 46,876 miles (75,440 km) of freeways. The construction of the interstate highway system is an important part of American history. It has played a major role in **preserving** and maintaining the American way of life.

The interstate highway system has several major functions. One of its major functions is to **facilitate** the distribution of US goods. Because the interstate passes through many downtown areas, it plays an important role in the **distribution** of almost all goods in the United States. Nearly all products travel at least part of the way to their destination on the Interstate System. Another major function of the interstate is to facilitate military troop movement to and from airports, seaports, rail terminals and other military destinations. The Interstate highways are connected to routes in the Strategic Highway Network, which is a system of highways that are **vital** to the U.S. Department of Defense.

Today, most of the Interstate system consists of newly constructed highways. The longest section of the Interstate system runs from Boston, Massachusetts to Seattle, Washington. It covers 3,020.54 miles. The shortest two-digit interstate is from Emery, North Carolina to Greensboro, North Carolina. It covers only 12.27 miles. All state capitals except five are served by the system. The five that are not directly served are Juneau, AK, Dover, DE, Jefferson City, MO, Carson City, NV, and Pierre, SD. The Interstate Highway System serves almost all major U.S. cities.

18

EACH Interstate highway is marked with a red, white, and blue shield with the word “Interstate,” the name of the state, and the route number. Interstate highways are named with one or two-digit numbers. North-south highways are **designated** with odd numbers: east-west highways are named with even numbers. The north-south

- A. 1946
- B. 1956
- C. 1957
- D. 2000

Interstate highways begin in the west with the lowest odd number; the east-west highways begin in the south with the lowest even numbers. There are mile markers at each mile of the interstate system, starting at the westernmost or southernmost point on the highway. Every Interstate highway begins with the number "0". Interchanges are numbered according to their location on the highway in relation to mileage; an exit between milepost 7 and milepost 8 would be designated "Exit 7." This system allows drivers estimate the distance to a desired exit, which a road is leading off the highway. Despite the common acceptance of the numbering system on the Interstate highways, some states have adopted different numbering systems. For example, a portion of the Interstate 19 in Arizona is measured in kilometers instead of miles since the highway goes south to Mexico.

Since the Interstate highways are freeways-highways that do not have signs and cross streets – they have the highest speed limits in the nation. Most interstate highways have speed limits between 65 – 75 miles per hour (105 – 120 kilometers per hour), but some areas in Texas and Utah have an 80 mile-per-hour (130 kilometer-per-hour) speed limit.

The federal government primarily funds interstate highways. However, they are owned and operated by the individual states or toll authorities in the states. The federal government generally funds up to 90% of the cost of an Interstate highway, while the states pay the remainder of the cost.

When did the interstate Highway System begin?

Fleas are perfectly designed by nature to feast on anything containing blood. Like a shark in the water or a wolf in the woods, fleas are ideally equipped to do what they do, making them very difficult to defeat. The bodies of these tiny parasites are extremely hardy and well-suited for their job.

A flea has a very hard exoskeleton, which means the body is covered by a tough, tile-like plate called a sclerite. Because of these plates, fleas are almost impossible to squish. The exoskeletons of fleas are also waterproof and shock resistant, and therefore fleas are highly resistant to the sprays and chemicals used to kill them.

Little spines are attached to his plate. The spine the flea scurries through an animal's fur in – search of grooming pet tries to pull a flea off through the hair coat, these spines will extend and stick to the fur like Velcro.

Fleas are some of the best jumpers in the natural world. A flea can jump seven inches, or 150 times its own length, either vertically or horizontally. An equivalent jump for a person would be 555 feet, the height of the Washington Monument. Fleas can jump 30,000 times in a row without stopping, and they are able to accelerate through the air at an incredibly high rate – a rate which is over ten times what humans can withstand in an airplane.

Fleas have very long rear legs with huge thigh muscles and multiple joints. When they get ready to jump. They fold their long legs up and crouch like a runner on a starting block. Several of their joints contain a protein called resilin, which helps catapult fleas into the air as they jump, similar to the way a rubber band provides momentum to a slingshot. Outward facing claws on the bottom of their legs grip anything they touch when they land.

The adult female flea mates after her first blood meal and begins producing eggs in just 1 to 2 days. One flea can lay up to 50 eggs in one day and over 2,000 in her lifetime. Flea eggs can be seen with the naked eye, but they are about the size of a grain of salt. Shortly after being laid, the eggs begin to transform into cocoons. In the cocoon state, fleas are fully developed adults, and will hatch immediately if conditions are favorable. Fleas can detect warmth, movement, and carbon dioxide in exhaled breath, and these three factors stimulate them to emerge as new adults. If the flea does not detect appropriate conditions, it can remain dormant in the cocoon state for extended periods. Under ideal conditions, the entire life cycle may only take 3 weeks, so in no time at all, pets and homes can become infested.

Because of these characteristics, fleas are intimidating opponents. The best way to control fleas, therefore, is to take steps to prevent an infestation from ever occurring.

The author mentions the Washington Monument in order to

- A. Estimate the extreme distance that a flea is able to jump
- B. Illustrate a comparison made between fleas and humans
- C. Clarify a point made regarding fleas and acceleration
- D. Demonstrate the superiority of fleas over human

19

Do you live in a house? You might be surprised to learn that there are many, many kinds of houses. Most people in the United States are used to houses made of wood or bricks. But many people around the world live in houses made of grass, dirt, or cloth. In the Great Rift Valley of Eritrea, the nomadic people who are in the Atr tribe build their houses of straw. Their houses are shaped like domes - half spheres. The homes are small and cool. The people can move their houses when they want to move. Since the people are nomads, they

people can move their houses when they want to move. Since the people are nomads, they move often. They take their animals to new places in order to find food. People who belong to the Uros tribe of Lake Titicaca, Peru build their houses of reeds. Not only that - they also live on islands that are made of reeds. Their boats are made of reeds too. About 2,000 people live on these man-made islands. They started to build their own islands about 500 years ago. In Andalusia, in the south of Spain, some people live in underground houses. This kind of house is called a cueba. During the winter, the houses stay warm. During the summer, the houses stay cool. In Sana'a, Yemen, some people live in tall houses made of bricks. These bricks are made of clay, straw and soil. The bricks last many years - maybe as long as 500 years. The modern houses in Sana'a are made to look like the older, traditional houses, but they are made of concrete instead of bricks. In Mindadanao in the Philippines, some people still live in tree houses. The tree houses are made of bamboo with grass roofs. The houses are good lookouts for snakes and wild animals. The air is cool and the houses stay dry. Now, most people use these tree houses as meeting places. The fisherman of Sabah, Malaysia build their houses on the water. They use wood from mangrove trees. This wood stays strong in the water. The houses receive official addresses from the government. Fujian, China has many townhouses that are made of hard-packed soil. The dirt becomes as strong as bricks when it is packed hard. One large family group lives in a townhouse. The townhouses were built around 300 years ago. A group of townhouses is protected by a thick dirt-packed wall. In the Gobi Desert in Mongolia, some nomadic people live in homes called gels. These homes are made of cloth. The cloth is filled with animal hair. Two poles in the center of the house hold the house up. The people move often to find food for their animals. The houses are easy to move and set up. Some American Indians live in teepees. These homes are made of cloth or buffalo hide. There are wooden poles used to hold the teepee up. Now some people use teepees only for special ceremonies, but people used to live in them all the time. The traditional houses of Chitos, Greece, are made of stone. They have arched doorways and indoor courtyards. They have outdoor dining rooms which are decorated with tile and rock. This means they are ornamented, and made to look more beautiful. The Dayak people of Indonesia build some of their houses on stilts, several feet the ground. The frame of the house is made of iron. The walls are made of tree bark. The floors are made of wooden planks which are placed side by side. The houses are decorated with pictures of water snakes and rhinoceros birds. These animals are part of the people's story of creation, or how the world was made. People build their houses to fit the needs of their lives. The houses are different, but one thing is the same wherever you go. There's no place like home

Question:

How are the islands and the houses of the Uros tribe the same?

20

- A. They are both made by machines
- B. They are both made of reeds
- C. They are both made of soil
- D. They are both very modern