

1 次の英文を読み、設問1.～15.に最も適する答えを、a.～d.の中から一つ選べ。

Listeriosis is an illness caused by the bacterium *Listeria monocytogenes* that is ⁽¹⁾acquired by eating contaminated food. The organism can spread to the blood stream and central nervous system. During pregnancy, listeriosis often causes miscarriage or stillbirth. This bacteria can be carried by many animals and birds, and it has been found in soil, water, sewage, and animal feed. Five out of every 100 people carry *Listeria monocytogenes* in their intestines. Listeriosis is considered a "food-borne illness" because most people are probably infected after eating food contaminated with *Listeria monocytogenes*. However, a woman can pass the bacteria to her baby during pregnancy. In addition, there have been a few cases where workers have developed *Listeria* skin infections by touching infected calves or poultry (chickens).

Persons at particular risk for listeriosis include the elderly, pregnant women, newborns, and those with a weakened immune system (called "immunocompromised"). Risk is increased when a person suffers from diseases such as AIDS, cancer, kidney disease, diabetes mellitus, or by the use of certain medications. Infection is most common in babies younger than one month old and adults over 60 years of age. Pregnant women account for 27% of the cases and immunocompromised persons account for almost 70%. Persons with AIDS are 280 times more likely to get listeriosis than others.

As noted, persons become infected with *Listeria monocytogenes* by eating contaminated food. *Listeria* has been found on raw vegetables, fish, poultry, raw (unpasteurized) milk, fresh meat, processed meat (such as deli meat, hot dogs, and canned meat), and certain soft cheeses. Unlike most other bacteria, *Listeria monocytogenes* do not stop growing when food is in the refrigerator — its growth is merely slowed. ⁽²⁾ Fortunately, typical cooking temperatures and the pasteurization process do kill this bacteria.

Listeria bacteria can pass through the wall of the intestines, and from there they can get into the blood stream. Once in the blood stream, *Listeria* bacteria can be transported anywhere in the body, but are commonly found in the central nervous system; and in pregnant women they are often found in the placenta. ⁽³⁾ *Listeria monocytogenes* live inside specific white blood cells called macrophages. Inside macrophages, the bacteria can hide from immune responses and become inaccessible to certain antibiotics. *Listeria* bacteria are capable of multiplying within macrophages, and then may ⁽⁴⁾spread to other macrophages.

After someone consumes food contaminated with this bacteria, symptoms of infection may appear anywhere from 11-70 days later. Most people do not get any ⁽⁵⁾noticeable symptoms. Scientists are unsure, but they believe that *Listeria monocytogenes* can cause upset stomach and intestinal problems just like other food borne illnesses. Persons with listeriosis may develop flu-like

symptoms, such as fever, headache, nausea and vomiting, tiredness, and diarrhea.

Pregnant women experience a mild, flu-like illness with fever, muscle aches, upset stomach, and intestinal problems. They recover, but the infection can cause miscarriage, ⁽⁶⁾premature labor, early rupture of the birth sac, and stillbirth. Unfortunately, half of the newborns infected with *Listeria* will die from the illness.

Immunocompromised adults are at risk for a serious infection of the blood stream and central nervous system (brain and spinal cord). Meningitis occurs in about half of the cases of adult listeriosis. Symptoms of listerial meningitis occur about four days after the flu-like symptoms and include fever, personality change, ⁽⁷⁾uncoordinated muscle movement, tremors, muscle contractions, seizures, and slipping in and out of ⁽⁸⁾consciousness.

The overall death rate for listeriosis is 26%. This high death rate is due to the serious illness suffered by newborns, the elderly, and immunocompromised persons. Healthy adults and older children have a low death rate. ⁽⁹⁾Complications of *Listeria* infection include: meningitis, sepsis, miscarriage, stillbirth, pneumonia, shock, endocarditis, abscess (localized infection) formation, and eye inflammation.

1. The word "acquired" is closest in meaning to
- reproduced
 - achieved
 - contaminated
 - contracted
2. Which of the following sentences is closest in meaning to the underlined part?
- Whereas few bacteria will cease growing when infected food is put in the refrigerator, the *Listeria monocytogenes* will grow more slowly or stop growing altogether.
 - Listeria monocytogenes* do not grow well in the refrigerator unless there is food present, while most other bacteria will grow more slowly when the food they infect is refrigerated.
 - Most bacteria that contaminate food will not stop growing when the food is put in the refrigerator, but, in contrast to *Listeria monocytogenes*, will continue to grow more slowly.
 - Listeria monocytogenes* will continue to develop, only more slowly, when the food it contaminates is refrigerated. Most bacteria, however, will not grow when put in the refrigerator.

3. Which of the following sentences is closest in meaning to the underlined part?
- a. Listeria bacteria often move into the central nervous system, but because they move through the blood circulation, they can possibly go to any part of the body, and frequently move into the placenta in the case of a pregnant patient.
 - b. The central nervous system is the most common location for the Listeria bacteria, and from there they can move to the placenta of a pregnant patient, to the blood, or to any other part of the body.
 - c. Listeria bacteria are transported to the central nervous system or the placenta of pregnant women from the blood stream, but they are usually found in other parts of the body.
 - d. The most common place for the Listeria bacteria to be found is in the blood stream, but they can also be found in the central nervous system or the placenta of pregnant women.
4. The word "inaccessible" is closest in meaning to
- a. out of reach
 - b. unable to affect
 - c. distant from
 - d. resistant to
5. The word "noticeable" is closest in meaning to
- a. ordinary
 - b. observable
 - c. objective
 - d. astonishing
6. The word "premature" is closest in meaning to
- a. adolescent
 - b. advanced
 - c. previous
 - d. early
7. The word "uncoordinated" is closest in meaning to
- a. awkward
 - b. involuntary
 - c. adjusted
 - d. mismatched

8. The word "consciousness" refers to
- being careful about what one is doing.
 - being awake and aware of one's surroundings.
 - unable to think or move.
 - showing an attitude of being very cautious about what one says and does.
9. The word "complications" refers to
- circumstances that make curing a disease more difficult.
 - medical conditions caused by a compromised immune system.
 - medical problems that are the consequence of another disease.
 - pains caused by the presence of a disease.
10. According to the text, people can contract listeriosis by
- receiving it from babies in the womb.
 - carrying monocytes in their intestines.
 - having a miscarriage.
 - ingesting contaminated food.
11. According to the text, the people most at risk of contamination with listeriosis are
- adults over 60 years old.
 - pregnant women.
 - newborn babies.
 - persons with AIDS.
12. According to the text, the Listeria bacteria
- are stopped by refrigeration.
 - are killed by cooking.
 - are slowed by pasteurization.
 - both b and c.
13. According to the text, Listeria bacteria are able to avoid the body's immune response by
- concealing themselves inside macrophages.
 - traveling in the bloodstream.
 - moving to the central nervous system.
 - multiplying within white blood cells.

14. According to the text, symptoms of listeriosis
- a. include weariness, headache, and stomach rigidity.
 - b. usually appear within the first week of infection.
 - c. can appear as much as two months after the bacteria enters the body.
 - d. are very severe for the majority of patients.
15. According to the text, people who have the highest death rate from listeriosis are
- a. newborns, people with weak immune systems, and the elderly.
 - b. people with weak immune systems, older children, and newborns.
 - c. healthy adults and pregnant women.
 - d. pregnant women, people with compromised immune systems, and newborns.

2 次の英文を読み、設問1.～15.に最も適する答えを、a.～d.の中から一つ選べ。

You trudge across the sodium lit street toward the front door, footsteps echoing off the adjacent houses—it's been a long day. Plodding up the stairs, you enter the bathroom and turn on the shower. Finally, a time to relax and unwind. But when the steaming water first hits your skin, you're jolted by a sharp, icy-cold sensation, accompanied by searing pain. Why does that hot water feel so cold?

The human body senses temperature changes through specialized nerve ⁽¹⁾_____ called thermoreceptors, located just beneath the skin. These receptors are ⁽²⁾_____ throughout the body and are constantly transmitting temperature information to the brain. A decrease in temperature activates cold receptors, and an increase activates warm receptors. Thermoreceptors can also respond to specific chemicals. For example, menthol activates cold receptors, which explains the chilling sensation you might feel after brushing your teeth or using an analgesic cream. Capsaicin, a chemical found in chili peppers, has been shown to activate warm receptors, causing the familiar red-hot burning and sweating reaction that accompanies a spicy meal.

Cold receptors primarily react to temperatures ranging from 68 to 86°F, while warm receptors are activated between 86°F and 104°F. At extreme temperatures—below 60°F and beyond 113°F—the temperature signal is accompanied by a sensation of pain. Weirdly, researchers have discovered that at temperatures greater than 113°F, some cold receptors can also ⁽³⁾_____. This phenomenon, known as paradoxical cold, has puzzled scientists for decades. No one is quite sure why the effect happens, since it doesn't seem to offer an evolutionary or ⁽⁴⁾_____ benefit, says Barry Green, director of the John B. Pierce Laboratory and professor of surgery at Yale University School of Medicine. Today researchers are considering a wide array of interpretations of the strange sensation.

The majority of scientists support the theory that paradoxical cold is a malfunction of the thermoreceptor system. Evidence suggests that pain receptors that respond to potentially harmful heat levels coexist on the same sensory fibers as cold thermoreceptors, says Lynette Jones, a senior research scientist at MIT. So when the nerve fiber sends a signal to the brain, it can sometimes be misinterpreted as a sensation of extreme cold. Paradoxical cold is the "strange operation of a system under unusual stimulation conditions," she says.

It's also possible that cold receptors can do double duty, says Green. Based on his research, he thinks cold receptors can be ⁽⁵⁾_____ to help the brain sense potentially harmful temperatures at both hot and cold extremes. So instead of considering the input from cold and warm receptors separately, the brain ⁽⁶⁾_____ them.

"The brain is a highly economical computational machine. It is using all the information it can to make as quick and accurate a judgment as possible," says Green. "There is an array of receptors

that comes into play, and I believe it is the total readout that the brain is using." This theory is supported by the fact that there are far more cold receptors beneath the skin than warm ones, and the signals from cold receptors actually travel to the brain up to ten times faster than signals from warm receptors. That suggests cold receptors could provide additional pain signaling when you encounter dangerous temperatures.

However, paradoxical cold only activates a subset of cold receptors, and your body temperature at the time determines whether you feel it. Having a higher internal body temperature lowers your threshold for sensing cold, so the warmer you are, the greater the chance of experiencing a paradoxical cold response.

Scientists have also confirmed the equally puzzling⁽⁷⁾ of paradoxical heat, in which even a relatively mild cold blast produces a hot sensation. Until sufficient research is found to tip the balance toward a particular theory, the actual workings of paradoxical sensations will remain a topic of heated⁽⁸⁾ in the scientific community.

1. Which word is best for blank 1?

- a. hosts
- b. signs
- c. endings
- d. markers

2. Which word is best for blank 2?

- a. removed
- b. distributed
- c. included
- d. accumulated

3. Which word is best for blank 3?

- a. fire
- b. initiate
- c. animate
- d. launch

4. Which word is best for blank 4?

- a. creative
- b. changeable
- c. harmless
- d. adaptive

5. Which word is best for blank 5?

- a. restored
- b. repaired
- c. retrieved
- d. recruited

6. Which word is best for blank 6?

- a. infers
- b. integrates
- c. interferes
- d. institutes

7. Which word is best for blank 7?

- a. existence
- b. relevance
- c. validity
- d. solution

8. Which word is best for blank 8?

- a. debate
- b. nerves
- c. sensations
- d. predictions

9. According to the text, the thermoreceptors beneath our skin
- have separate receptors for hot and cold.
 - respond more strongly to chemicals than to temperature.
 - can react to certain chemicals if they have also been activated by a chilling or burning sensation.
 - can additionally react to sweating from eating hot foods.
10. According to the text, brushing your teeth causes a sensation of cold because
- the toothpaste reacts to thermoreceptors in your mouth.
 - the menthol in toothpaste is activating the same pain receptors that respond to analgesics.
 - thermoreceptors are being triggered by chemicals in the toothpaste.
 - tooth brushing causes a decrease in temperature.
11. According to the text, pain will occur along with the sensation of heat
- at temperatures between 86 and 104°F.
 - over a wide range of temperatures.
 - at temperatures below 60°F.
 - at temperatures above 113°F.
12. According to the text, the activation of cold receptors at high temperatures
- causes a sensation of pain.
 - is thought to be the result of evolutionary processes.
 - is not well understood by scientists.
 - all of the above.
13. According to the text, the common theory of paradoxical cold is that it
- is probably caused by a disease of the nervous system that triggers an unusual stimulation of receptors so that pain feels like cold.
 - is probably produced by pain sensations caused by heat traveling along the same nerve fibers that carry cold sensations.
 - is possibly harmful if it causes a person to think that hot is really cold.
 - is possibly caused by the brain responding to hot and cold temperature sensations together.

14. Another theory about why we feel paradoxical cold is that
- a. the brain uses cold receptors to provide extra warning for pain from heat because cold receptors are faster and more numerous than warm receptors.
 - b. the brain uses cold receptors for heat as well as cold because the brain is trying to economize on its use of the nervous system.
 - c. the brain's total readout of hot and cold receptors is fooled into thinking something is cold because there are ten times as many receptors for cold as there are for heat.
 - d. the body signals cold to the brain in order to protect it from the sensation of pain caused by extreme heat.
15. According to the text, the activation of receptors from paradoxical cold
- a. is more likely if you are already cold.
 - b. governs what your internal body temperature will feel like.
 - c. happens because cold receptors are divided into subsets.
 - d. is more likely if your body temperature is higher.

3 次の英文を完成させるために、1.～10.までの下線部に入る最も適した語句をa.～d.の中から一つ選べ。

Why do we like to listen to tunes when we exercise? Psychologist Tom Stafford searches for answers within our brains, not the muscles we are exercising.

Perhaps you have a favourite playlist for going to the gym or the park. _____ you haven't, you're certain to have seen joggers running along with headphones in their ears. (1) Lots of us love to exercise to music, feeling like it helps to reduce effort and increase endurance. As a psychologist, the interesting thing for me is _____ music helps when exercising, but how it helps.

One thing is certain, the answer lies within our brains, not the muscles we are exercising. (2) A clue comes from an ingenious study, which managed to separate the benefits of practicing a movement from the benefits of training the muscle that does the movement. If you think that sounds peculiar, several studies have shown that the act of imagining making a movement produces significant strength gains. The benefit isn't _____ you practiced making the movement for real, but still the benefit of thinking about the movement can account for over half of the benefit of practice. (3) _____ people to carry out an imaginary practice task allows us to see the benefit of just thinking (4) about a movement, and separates this from the benefit of making it.

Imaginary practice helps because it increases the strength of the signal sent from the movement areas of the brain to the muscles. Using electrodes you can record the size of this signal, and demonstrate that after imaginary practice people are able to send a stronger, more coherent signal to the muscles.

The signals to move the muscles start in an area of the brain called, _____, the motor cortex. (5) It's in the middle near the top. Part of this motor area is known as the supplementary motor cortex. Originally _____ to be involved in more complex movements, this area has since been shown to be (6) particularly active at the point we're planning to make a movement, and especially crucial for the timing of these actions. So, this specific part of the brain does a very important job during exercise, it is responsible for deciding exactly when to act. Once you've realised that a vital part of most sporting performance is not just how fast or how strong you can move, but the effort of deciding when to move, then you can begin to appreciate why music might be so helpful.

The benefits of music are largest for self-paced exercise — _____ those sports where some of (7) the work involved is in deciding when to act, as well as how to act. This means all paced exercises, like rowing or running, _____ un-paced exercises like judo or football. (8) My speculation is that music helps us perform by taking over a vital piece of the task of moving, the rhythm travels in through our ears and down our auditory pathways to the supplementary motor area. There it joins forces with brain activity that is signalling when to move, helping us to keep pace by providing an external

timing signal. Or to use a sporting metaphor, it not only helps us _____ the starting blocks but it helps to keep us going until we reach the line. Of course there are lots of other reasons we might exercise to music. For example, a friend of mine who jogs told me: "I started running to music so I didn't have to listen to my own laboured breathing." He _____ started for that reason, but now I'll bet the rhythm of the music he listens to helps him keep pace through his run. As one song might have put it, music lets us get physical.

1. a. When
c. Considering
- b. As far as
d. Even if
2. a. while
c. that
- b. not just whether
d. if not
3. a. as big as if
c. as well if
- b. big as if
d. as well as
4. a. If you ask
c. Being asked
- b. Not asking
d. So asking
5. a. scarcely
c. ironically
- b. alternately
d. unsurprisingly
6. a. have thought
c. thought
- b. thinking
d. having thought
7. a. in the same way
c. in addition
- b. in the first place
d. in other words
8. a. or rather
c. rather that
- b. rather than
d. rather like
9. a. out of
c. on
- b. into
d. under
10. a. might as
c. might not have
- b. might well
d. might well have

4 次の英文を読み、設問1.～15.に最も適する答えを、a.～d.の中から一つ選べ。

As our bodies perform strenuous exercise, we begin to breathe faster as we attempt to shuttle more oxygen to our working muscles. The body prefers to generate most of its energy using aerobic methods, meaning with oxygen. Some circumstances, however,—such as evading the historical saber tooth tiger or lifting heavy weights—require energy production faster than our bodies can adequately deliver oxygen. In those cases, the working muscles generate energy anaerobically. This energy comes from glucose through a process called glycolysis, in which glucose is broken down or metabolized into a substance called pyruvate through a series of steps. When the body has plenty of oxygen, pyruvate is shuttled to an aerobic pathway to be further broken down for more energy. But when oxygen is limited, the body temporarily converts pyruvate into a substance called lactate, which allows glucose breakdown—and thus energy production—to continue. The working muscle cells can continue this type of anaerobic energy production at high rates for one to three minutes, during which time lactate can accumulate to high levels.

A side effect of high lactate levels is an increase in the acidity of the muscle cells, along with disruptions of other metabolites. The same metabolic pathways that permit the breakdown of glucose to energy perform poorly in this acidic environment. On the surface, it seems counterproductive that a working muscle would produce something that would slow its capacity for more work. In reality, this is a natural defense mechanism for the body; it prevents permanent damage during extreme exertion by slowing the key systems needed to maintain muscle contraction. Once the body slows down, oxygen becomes available and lactate reverts back to pyruvate, allowing continued aerobic metabolism and energy for the body's recovery from the strenuous event.

Contrary to popular opinion, lactate or, as it is often called, lactic acid buildup is not responsible for the muscle soreness felt in the days following strenuous exercise. Rather, the production of lactate and other metabolites during extreme exertion results in the burning sensation often felt in active muscles, though which exact metabolites are involved remains unclear. This often painful sensation also gets us to stop overworking the body, thus forcing a recovery period in which the body clears the lactate and other metabolites.

Researchers who have examined lactate levels right after exercise found little correlation with the level of muscle soreness felt a few days later. This delayed-onset muscle soreness, or DOMS as it is called by exercise physiologists, is characterized by sometimes severe muscle tenderness as well as loss of strength and range of motion, usually reaching a peak 24 to 72 hours after the extreme exercise event.

Though the precise cause of DOMS is still unknown, most research points to actual muscle cell damage and an elevated release of various metabolites into the tissue surrounding the muscle cells.

These responses to extreme exercise result in an inflammatory-repair response, leading to swelling and soreness that peaks a day or two after the event and resolves a few days later, depending on the severity of the damage. In fact, the type of muscle contraction appears to be a key factor in the development of DOMS. When a muscle lengthens against a load—⁽⁸⁾imagine your flexed arms attempting to catch a thousand pound weight—the muscle contraction is said to be eccentric. In other words, the muscle is actively contracting, attempting to shorten its length, but it is failing. These eccentric contractions have been shown to result in more muscle cell damage than is seen⁽⁹⁾with typical concentric contractions, in which a muscle successfully shortens during contraction against a load. Thus, exercises that involve many eccentric contractions, such as downhill running, will result in the most severe DOMS, even without any noticeable burning sensations in the muscles during the event.

1. The word "strenuous" is closest in meaning to
 - a. demanding
 - b. resolute
 - c. beneficial
 - d. adverse

2. The word "converts" is closest in meaning to
 - a. persuades
 - b. induces
 - c. transforms
 - d. transports

3. Which of the following sentences is closest in meaning to the underlined part?
 - a. Anaerobic energy production can continue for up to three minutes as the muscle cells work to accumulate high levels of lactate.
 - b. High levels of lactate in the muscle cells accompany the production of high rates of anaerobic energy, but only for about one to three minutes.
 - c. The production of anaerobic energy is accompanied by high levels of lactate buildup and can last for one to three minutes.
 - d. Muscle cells can produce high levels of anaerobic energy while lactate levels are high, which is for about one to three minutes.

4. The word "disruptions" is closest in meaning to
- a. distractions
 - b. disturbances
 - c. discharges
 - d. disposals
5. The word "counterproductive" probably means
- a. something that has a beneficial effect.
 - b. having the opposite of the desired effect.
 - c. something that has no noticeable effect.
 - d. having too strong an effect.
6. The word "exertion" is closest in meaning to
- a. relaxation
 - b. contrast
 - c. manipulation
 - d. effort
7. The word "correlation" is closest in meaning to
- a. connection
 - b. complement
 - c. collaboration
 - d. corruption
8. The word "resolves" in the context of the text probably means
- a. becomes firm.
 - b. progresses to the next stage.
 - c. finds a solution.
 - d. returns to the normal state.

9. Which of the following sentences is closest in meaning to the underlined part?
- When the muscles are able to shorten when pulling on a weight, it is called concentric contraction, and it normally produces less damage to the muscles than eccentric contraction does.
 - Concentric contractions cause more damage to the muscles than eccentric contractions because muscle cells are able to lengthen during eccentric contraction.
 - Eccentric contractions result in more damage to muscle cells than concentric contractions because more muscle cells are pulling on a load.
 - The muscle cell damage caused by contracting against a load is typically worse during eccentric contractions because the muscle cells are shortening more than they do with concentric contractions.
10. According to the text, muscles sometimes use anaerobic energy production because
- lifting heavy weights does not require the use of oxygen to produce energy.
 - glycolysis is more efficient than aerobic energy production.
 - aerobic energy production limits the body's use of pyruvate.
 - muscles sometimes use energy too quickly for aerobic energy production.
11. According to the text, the production of lactate
- limits the use of oxygen by the muscle cells.
 - is a result of producing energy when there is not enough oxygen.
 - allows pyruvate to convert back into glucose.
 - helps the body to continue producing energy after glucose has been broken down.
12. According to the text, why can anaerobic energy production not last for more than a few minutes?
- Because the buildup of lactic acid reduces the muscles' ability to produce more energy.
 - Because damage to the muscles from lactic acid prevents them from working harder.
 - Because lactic acid needs to change back into pyruvate for oxygen to become available.
 - Because the buildup of lactic acid prevents the formation of glucose in the muscle cells.

13. According to the text, the burning pain caused by the buildup of lactic acid in muscle cells
- a . also causes the muscle soreness that occurs days later.
 - b . is caused by the lactate converting back to pyruvate.
 - c . tells the body not to overwork the muscles.
 - d . is part of an inflammatory response.
14. According to the text, the cause of delayed-onset muscle soreness is probably
- a . high levels of lactate in the muscle cells.
 - b . the delayed action of lactate.
 - c . the body forcing the muscles into the recovery period.
 - d . an increase in the discharge of metabolites.
15. According to the text, the type of muscle contraction that is most likely to cause delayed-onset muscle soreness is when
- a . the muscle cells fail to contract.
 - b . the muscle cells shorten against a heavy load.
 - c . the muscle cells lengthen under stress instead of shortening.
 - d . the muscles contract without any burning sensations.

5

1. ～ 5. について、下線部の発音が他の三つと異なるものを、a. ～ d. の中から一つ選べ。

- | | | | |
|------------------------|--------------------|---------------------|--------------------|
| 1. a. <u>breast</u> | b. <u>pleasure</u> | c. <u>disease</u> | d. <u>sweat</u> |
| 2. a. <u>bowel</u> | b. <u>towel</u> | c. <u>knowledge</u> | d. <u>allow</u> |
| 3. a. <u>imagine</u> | b. <u>eager</u> | c. <u>oxygen</u> | d. <u>voyage</u> |
| 4. a. <u>stomach</u> | b. <u>chronic</u> | c. <u>chaos</u> | d. <u>spinach</u> |
| 5. a. <u>continent</u> | b. <u>partial</u> | c. <u>patient</u> | d. <u>national</u> |

6. ～ 10. について、最も強く発音される部分の位置が他の三つと異なるものを、a. ～ d. の中から一つ選べ。

- | | | | |
|------------------------|------------------|-----------------|----------------|
| 6. a. con·vey | b. con·sist | c. con·cept | d. con·vince |
| 7. a. west·ern | b. main·tain | c. pre·pare | d. post·pone |
| 8. a. op·er·ate | b. en·cour·age | c. con·trib·ute | d. nu·tri·tion |
| 9. a. rec·og·nize | b. de·ter·mine | c. sat·is·fy | d. in·flu·ence |
| 10. a. dis·ad·van·tage | b. ar·ti·fi·cial | | |
| c. sci·en·tif·ic | d. i·den·ti·cal | | |

