

# 南京理工大学

## 2018 年硕士学位研究生入学考试试题

科目代码: 241

科目名称: 单独考试英语

满分: 100 分

注意: ①认真阅读答题纸上的注意事项; ②所有答案必须写在答题纸上, 写在本题纸或草稿纸上均无效; ③本试题纸须随答题纸一起装入试题袋中交回!

### Part I Reading Comprehension (40 points, 2 points each)

**Directions:** There are 4 passages in this part. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A), B), C) and D). You should decide on the best choice and mark the corresponding letter on the Answer Sheet with a single line through the centre.

Questions 1-5 are based on the following passage:

Ultrasound waves can be produced in several ways. One method requires a thin piece of quartz crystal (Quartz is a common mineral found in sand and many rocks.) High-frequency alternating current is fed into the quartz. The crystal vibrates in step with the electric current and produces an ultrasonic wave. Another method is to make use of an electromagnet with a special core usually made of the metal nickel. When a high-frequency alternating current is passed through the electromagnet, the nickel core expands and contracts slightly in step with the current. The expansion and contractions set up ultrasonic vibrations in the surrounding medium.

Ultrasonic waves have a very short wavelength and a high frequency. Because of this many waves—and their energy—are packed into a small space. Scientists have found many ways of putting this concentrated energy to use in scientific research, in industry, and in medicine.

Ordinary sound waves move outward in all directions. But the very short wavelengths of ultrasound waves make it possible to beam ultrasonic in a straight line. Scientists have used straight ultrasonic beams in systems called sonar to locate submarines, schools of fish, and other solid objects underwater.

In sonic systems, sound reflections, or echoes, are used to detect the solid objects. A pulse, or burst, of ultrasonic waves is sent out from an instrument on a ship. The ultrasonic waves travel underwater in a straight line until they strike a solid object. The waves are then reflected the ship. Dials on the instrument inform the operator of the location of the solid object.

To measure the depth of the ocean a type of sonar system called a fathometer(回声测深仪) is used. An operator aboard a ship beams an ultrasonic wave down into the water. The time it takes for the echo of the sound wave to return to the instrument on the ship gives the operator the depth of the water.

Ultrasound is used in industry to detect flaws hidden deep inside metals or other solid materials. An ultrasonic wave is beamed into the part to be tested. The way in which the beam is echoed back into a receiving device tells whether there is a defect in the material and where the defect is.

Liquids made to vibrate very quickly by ultrasonic waves can be used to clean tools and machine parts. Dishes and other hard objects can be washed quickly in specially designed ultrasonic machine.

Ultrasound is also used in machine for "bloodless surgery" and for other purposes.

These are only some of the uses of ultrasound. New uses are constantly being discovered.

1. This article is mainly about \_\_\_\_\_.
  - A. how to produce ultrasonic waves and how to use them in research
  - B. how to measure the depth of the ocean by ultrasonic waves
  - C. the importance of ultrasonic waves in science and research
  - D. what ultrasonic waves are
2. Which statement of the following is true according to the article?
  - A. Only contractions of nickel core set up ultrasonic vibrations.
  - B. The wavelength of ultrasonic waves is quite long.
  - C. We can wash dishes by ultrasonic waves.
  - D. The ultrasonic waves usually are packed into a small space.
3. Which one is not a use of ultrasonic waves?
  - A. To make the quartz crystal vibrate.
  - B. To locate submarine in the ocean.
  - C. To detect the solid objects under water.
  - D. To make the liquids vibrate.
4. Why can we measure the depth of the ocean by ultrasonic wave?
  - A. Because ultrasonic waves move outward in all directions.
  - B. Because the ultrasonic wave is quite short.
  - C. Because the ultrasonic wave can be a straight beam.
  - D. Because the ultrasonic wave can reflect.
5. Scientists can use straight ultrasonic beams to \_\_\_\_\_.
  - A. wash hard objects
  - B. detect flaws inside metals
  - C. make a nickel core vibrate
  - D. locate schools of fish

Questions 6-10 are based on the following passage:

Throughout the history of mankind people have been asking, "Can it really happen?" The question was asked when people first thought of going out on the oceans.

It was asked when Columbus set out on his journey, and as Marco Polo set sail. People thought the ships would drop off the edge of the world.

In the 1960's, when astronauts made plans to reach the Moon, many people believed it could never happen. But men did walk on the Moon, and they rode across the surface in Moon cars.

And what about space colonies? Can they really happen? The answer is a strong yes. Space colonies can be built. Right now engineers have the knowledge needed to get started.

Space colonization is in our future. It offers endless opportunities for people to expand. There are resources in space—endless energy, materials in the Moon and the asteroids, the advantages of weightlessness and a high vacuum.

The opening of the space frontier will be exciting. It will challenge the entire world. Each nation will be working on something outside its boundaries, and people from all corners of the world will be deeply involved in the most thrilling adventure that mankind has ever attempted.

Nations with the most advanced knowledge of electronics and the most industries will take the lead, but probably many countries will contribute scientists and engineers. Early space colonists will come from all over the world. Space colonies will bring people together for a great international effort. They may be a strong force for peace among all nations.

Life in a space colony should be very satisfying. People will have a high standard of living—a pleasant home, plenty of food, unlimited energy, and challenging opportunities.

Many people from Earth may prefer to live in space colonies, where the weather can be controlled, days can be made longer or shorter, and seasons can be adjusted to please the population. A person can be weightless, if desired, or live in a region where there is gravity, in surroundings more like those of Earth itself.

Each colony will have its own managers and engineers—people responsible for the operation of the colony. And each person will have a sense of responsibility, an essential part to play in the success of the colony.

The only certainty in the future is that radically new things will be happening. The only way to explore it is to use your imagination.

6. What is true about space colonies?
  - A. Engineers have set up a space colony on the moon.
  - B. To live in the space colony is better than on the earth.
  - C. People can control the weather in space colony, but it may not be a good thing.
  - D. The energy in space colony is from the earth, so it is limited.
7. Which is correct statement according to the article?
  - A. People thought the ships would drop off because the earth is round when Marco Polo set sail.
  - B. Men have ridden across the surface of the moon.
  - C. There is endless energy in the moon and asteroids.
  - D. People from all countries may come to the space colony on the moon.
8. Why will some prefer to live in space colonies?
  - A. There are endless resources.
  - B. People will not have any diseases there.
  - C. Many scientists are in space colonies.
  - D. People will have a fresh and pleasant life there.
9. What are the differences between space colony and the earth?
  - A. Space colony is weightless, but the earth is different.
  - B. Space colony has a high vacuum; the vacuum on the earth is low.
  - C. Days can be made shorter in space colony.
  - D. People can choose to live in where there is gravity or weightless in space colony.
10. Which statement of the following is NOT true according to the article?
  - A. It is certain that radical things will happen soon.
  - B. Space colony may improve the world peace.
  - C. There will be enough food in space colony.
  - D. The vacuum in space colonies is an advantage.

**Questions 11-15 are based on the following passage:**

Variety of simple techniques can prevent computer crime, but more sophisticated methods are also necessary to prevent computer crimes.

One technique to protect confidentiality is encryption (加密). Information can be scrambled (打乱) and unscrambled using mathematical equations and a secret code called a key. Two keys are usually employed, one to encode and the other to decode the information. The key that codes the data, called the private key, is possessed by only the sender. The key that decodes the data, called the public key, may be possessed by several receivers. The keys are modified periodically, further hampering unauthorized access and making the encrypted information difficult to decode

or forge.

Other technique to prevent computer crime is to limit access of computer data files to approved users. Access-control software verifies computer users and limits their privileges to view and alter files. Records can be made of the files accessed, thereby making users accountable for their actions. Military organizations give access rights to classified, confidential, secret, or top secret information according to the corresponding security clearance level of the user. Passwords are confidential sequences of characters that give approved users access to computers. To be effective, passwords must be difficult to guess. Effective passwords contain a mixture of characters and symbols that are not real words.

Tokens are tamper-resistant plastic cards with microprocessor chips that contain a stored password that automatically and frequently changes. When a computer is accessed using a token, the computer reads the token's password, as well as another password entered by the user, and matches these two to an identical token password generated by the computer and the user's password, which is stored on a confidential list. In the future, passwords and tokens may be reinforced by biometrics (生物测定学), identification methods that use unique personal characteristics, such as fingerprints, skin oils, voice variations, and keyboard-typing rhythms.

Computer networks, multiple computers linked together, are particularly vulnerable to computer crimes. Information on networks can be protected by a firewall, a computer placed between the networked computers and the network. The firewall prevents unauthorized users from gaining access to the computers on a network, and it ensures that information received from an outside source does not contain computer viruses, self-replicating computer programs that interfere with a computer's functions.

11. Which of the following statements best expresses the main idea of the passage?
  - A. There are many techniques used to prevent computer crime.
  - B. People are eager to commit computer crime.
  - C. Encryption is a useful technique to protect confidentiality.
  - D. Pass word can prevent computer crime.
12. According to Paragraph 2, the keys are changed frequently in order to \_\_\_\_.
  - A. encode more data
  - B. decode more data
  - C. give people more private keys
  - D. make information difficult to decode
13. Which of the following passwords does not belong to biometrics?
  - A. Numbers.
  - B. Fingerprints.
  - C. Skin oils.
  - D. Voice variations.
14. "Vulnerable" in the last paragraph is closest in meaning to " \_\_\_\_ ".
  - A. susceptible
  - B. changeable
  - C. valuable
  - D. dependable
15. According to this passage, "firewall" refers to " \_\_\_\_ ".
  - A. network functions
  - B. access to information on a network
  - C. a piece of device that protects the computers from being invaded or destroyed
  - D. computer virus that can copy computer programs

**Questions 16-20 are based on the following passage:**

In order to talk about the nature of the universe and to discuss questions such as whether it has a beginning or an end, you have to be clear about what a scientific theory is. I shall take the simple-minded view that a theory is just a model of the universe, or a restricted part of it, and a set of rules that relate quantities in the model to observations that we make. It exists only in our minds and does not have any other reality. A theory is a good theory if it satisfies two requirements. It

must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations. For example, Aristotle's theory that everything was made out of four elements, earth, air, fire, and water, was simple enough to qualify, but it did not make any definite predictions. On the other hand, Newton's theory of gravity was based on an even simpler model, in which bodies attracted each other with a force that was proportional to a quantity called their mass and inversely proportional to the square of the distance between them. Yet it predicts the motion of the sun, the moon, and the planets to a high degree of accuracy.

Any physical theory is always provisional, in the sense that it is only a hypothesis: you can never prove it. No matter how many times the results of experiments agree with some theory, you can never be sure that the next time the result will not contradict the theory. On the other hand, you can disprove a theory by finding even a single observation that disagrees with the predictions of the theory. In practice, what often happens is that a new theory that is devised is really an extension of the previous theory.

The eventual goal of science is to provide a single theory that describes the whole universe. However, the approach most scientists actually follow is to separate the problem into two parts. First, there are the laws that tell us how the universe changes with time. If we know what the universe is like at any one time, these physical laws tell us how it will look at any later time. Second, there is the question of the initial state of the universe. Some people feel that science should be concerned with only the first part; they regard the question of the initial situation as a matter for religion. They would say that God could have started the universe off any way he wanted. That may be so, but in that case he also could have made it develop in a completely arbitrary way. Yet it appears that he chose to make it evolve in a very regular way according to certain laws. It therefore seems equally reasonable to suppose that there are also laws governing the initial state.

It turns out to be very difficult to devise a theory to describe the universe all in one go. Instead, we break the problem up into bits and invent a number of partial theories. Each of these partial theories describes and predicts a certain limited class of observations, neglecting the effects of other quantities, or representing them by simple sets of numbers. It may be that this approach is completely wrong. If everything in the universe depends on everything else in a fundamental way, it might be impossible to get close to a full solution by investigating parts of the problem in isolation. Nevertheless, it is certainly the way that we have made progress in the past. The classical example is the Newtonian theory of gravity, which tells us that the gravitational force between two bodies depends only on one number associated with each body, its mass, but is otherwise independent of what the bodies are made of. Thus one does not need to have a theory of the structure and constitution of the sun and the planets in order to calculate their orbits.

Today scientists describe the universe on terms of two basic partial theories — the general theory of relativity and quantum mechanics. They are the great intellectual achievements of the first half of this century. The general theory of relativity describes the force of gravity and the large-scale structure of the universe. Quantum mechanics, on the other hand, deals with phenomena on extremely small scales, such as a millionth of a millionth of an inch. Unfortunately, however, these two theories are known to be inconsistent with each other — they cannot both be correct. One of the major endeavors in physics today, is the search for a new theory that will incorporate them both — a quantum theory of gravity. We do not yet have such a new theory, and we may still be a long way from having one, but we do already know many of the properties that it must have.

16. According to the author, a theory is all of the following EXCEPT for \_\_\_\_\_.
- a model of the universe
  - a restricted part of the universe
  - a set of rules
  - a reality
17. The difference between Aristotle's theory and Newton's theory is \_\_\_\_\_.
- Aristotle's theory can describe a large class of observations, while Newton's cannot.
  - Newton's theory can describe a large class of observations, while Aristotle's cannot.
  - Aristotle's theory can make a definite prediction of the future observations, while Newton's cannot.
  - Newton's theory can make a definite prediction of the future observations, while Aristotle's cannot.
18. The approach adopted by most scientists to devise a theory to describe the universe is \_\_\_\_\_.
- to break the problem up into bits and invent a number of partial theories
  - to invent one theory to describe the whole universe
  - to combine general theory of relativity with quantum mechanics
  - to study the origin of the universe
19. It is described in Newton's theory of gravity that bodies attracted each other with a force which is \_\_\_\_\_.
- inversely proportional to their mass
  - inversely proportional to the square of the distance between them
  - proportional to the square of the distance between them
  - proportional to the constitution of them
20. According the passage, the great intellectual achievements of the first half of the 20th century are \_\_\_\_\_.
- Newton's theory of gravity and the general theory of relativity
  - Newton's theory of gravity and quantum mechanics
  - the general theory of relativity and quantum mechanics
  - the general theory of relativity and the quantum theory of gravity

## Part II Vocabulary & Structure (10 points, 0.5point each)

Directions: There are 20 incomplete sentences in this part. For each sentence there are 4 choices marked A, B, C and D. Choose the ONE that best completes the sentence. Mark your answer on the ANSWER SHEET with a single line through the center.

21. As a result of careless washing, the jacket \_\_\_\_\_ to a child's size.
- contracted
  - compressed
  - shrank
  - decreased
22. Franklin's ability to learn from observations and experience \_\_\_\_\_ greatly to his success in public life.
- contributed
  - owed
  - attributed
  - related
23. I'm not sure whether I can gain any profit from this investment, so I can't make a(n) \_\_\_\_\_ promise to help you.
- refined
  - defined
  - confined
  - definite
24. After she'd overcome her \_\_\_\_\_ shyness, she became very comfortable and friendly.
- preliminary
  - previous
  - crucial
  - initial
25. We should always keep in mind that \_\_\_\_\_ decisions often lead to bitter regrets.

- A. urgent      B. hasty      C. instant      D. prompt
26. The ball \_\_\_\_\_ two or three times before rolling down the slope.  
A. swayed      B. bounced      C. hopped      D. leapt
27. He didn't have time to read the report word for word: he just \_\_\_\_\_ it.  
A. skimmed      B. observed      C. overlooked      D. glanced
28. People who live in small towns often seem more friendly than those living in \_\_\_\_\_ populated areas.  
A. densely      B. intensely      C. abundantly      D. highly
29. The lost car of the Lees was found \_\_\_\_\_ in the woods off the highway.  
A. vanished      B. abandoned      C. scattered      D. rejected
30. Mr. Morgan can be very sad \_\_\_\_\_, though in public he is extremely cheerful.  
A. by himself      B. in person      C. in private      D. as individual
31. Human behavior is mostly a product of learning, whereas the behavior of an animal depends mainly on \_\_\_\_\_.  
A. consciousness      B. impulse      C. instinct      D. response
32. If you have difficulties getting the money for something you want now, you can always buy it on \_\_\_\_\_.  
A. loan      B. debt      C. deposit      D. credit
33. You must pay customs \_\_\_\_\_ on certain goods brought into this country.  
A. fees      B. duties      C. cash      D. fund
34. Her remarks were \_\_\_\_\_ and obviously not planned.  
A. simultaneous      B. instantaneous      C. spontaneous      D. momentary
35. We will take \_\_\_\_\_ the expressway after 10 years of its operation according to the contract.  
A. over      B. back      C. away      D. up
36. Doing your homework is a sure way to improve your test scores, and this is especially true \_\_\_\_\_ it comes to classroom tests.  
A. before      B. as      C. since      D. when
37. In another twenty years, we'll leave them \_\_\_\_\_ in computer software.  
A. out      B. behind      C. aside      D. off
38. Just as the soil is a part of the earth, \_\_\_\_\_ the atmosphere.  
A. as it is      B. as it were      C. so is      D. and so is
39. The match was cancelled because most of the members \_\_\_\_\_ a match without a standard court.  
A. objected to having      B. were objected to have  
C. objected to have      D. were objected to having
40. The output of steel in this year is \_\_\_\_\_.  
A. three times as high as that of 1990      B. three times high as 1990  
C. as three times higher as that of 1990      D. as high as three times as that of 1990

### Part III Cloze (10 points, 1 point each)

Read the following passage and fill in each blank with one word. Filling in the following blanks in one of the three ways: according to the context, by using the correct form of the given word, or by using the given letter(s) of the word. Remember to write the answers on the answer sheet.

There is a phenomenon that sociologists call reference anxiety — or, more popularly, keeping up with the Joneses. According to that thinking, most people judge their possessions in (41) \_\_\_\_\_ (compare) with others'. People tend not to ask themselves, "Does my house meet my needs?" (42)

Ins \_\_\_\_\_ they ask, "Is my house nicer than my neighbor's?" If your two-bedroom house is surrounded by three and four-bedroom house, with some (43) ar \_\_\_\_\_ the corner doing a tear-down to build a McMansion, your reference anxiety may rise. Suddenly that two-bedroom house-one that your grandparents might have considered quite nice, even luxurious — doesn't seem enough. And so the money you spend on it stops (44) \_\_\_\_\_ (provide) you with a sense of wellbeing.

Americans' soaring reference anxiety is a product of the widening gap in income (45) \_\_\_\_\_ (distribute). In other words, the rich are getting richer faster, and the rest of the population is none too happy about it. During much of the U.S. history, the (46) \_\_\_\_\_ (major) lived in small towns or urban areas where conditions for most people were approximately the same-hence, low level (47) re \_\_\_\_\_ anxiety. Also, most people knew relatively little about those who were living higher on the hog.

But in the past few (48) de \_\_\_\_\_, new economy forces have changed all that. Rapid growth in income for the top 5 percent of households has brought (49) \_\_\_\_\_ a substantial cohort of people who live notably better than the middle class does, amplifying our reference anxiety. That wealthier minority is occupying ever-larger homes and spending more on each change of clothes when the middle is doing O.K. In nations with high levels of income equality like the Scandinavian countries, well-being tends to be (50) \_\_\_\_\_ (high) than in nations with unequal wealth distribution such as the United States.

### Part IV Translation (20 points)

Directions: Translate the following text from English into Chinese, or from Chinese into English.

#### A. From English into Chinese (10 points)

As a society we might want to rethink the time and money spent on education, so that these resources can benefit a greater percentage of the population. Ideally, both high schools and colleges can prepare individuals for the ever-changing roles that are likely to be expected of them. High school degrees offer far less in the way of preparation for work than they might, or than many other nations currently offer, creating a growing skills gap in our economy. We encourage students to go on to college whether they are prepared or not, or have a clear sense of purpose or interest, and now have the highest college dropout rate in the world.

#### B. From Chinese into English (10 points)

近年来,越来越多的研究表明:除了对能量的生理需要外,人们的食欲和食物摄入量受到诸多因素的影响,包括人们的饮食环境和对面前食物的认知。例如:研究表明,在电视机(或者类似设备)前饮食能够同时增加饥饿感和食物的摄入量。即使是简单的视觉信号,比如餐盘的尺寸和灯光,也被证实会对食物的摄入量造成影响。新的研究显示人们的短期记忆同样对食欲起作用。饭后几小时,决定人们饥饿程度的不是他们已食用的食物量,而是他们吃饭时所见到的食物量,换言之,是他们所记得的食物量。

### PART V Writing (20 points)

Directions: Have you ever experienced or observed gender discrimination in job-hunting? Write an essay of not less than 150 words to express your ideas. You may use examples to describe and analyze such discrimination in the job market. The suggested title is *Gender Discrimination in Job-hunting*.