上海交通大学国际本科生招生考试英语科考试大纲

2021 年 11 月

一、考试目的

上海交通大学国际本科生招生考试（英语）是为上海交通大学国际本科生招生而进行的选拔性外语考试。该考试旨在考察国际学生是否具备在中国高校进行本科学习所需要的英语能力。

二、考核的技能

本考试为学术英语测试，主要考察学生在学术环境下使用英语参与语言交际活动的能力。语言交际活动分为三大类：接受性语言活动、产出性语言活动和互动性语言活动。参与各种类型的语言交际活动所需的主要技能描述如下。

(1) 接受性语言活动所需的技能

接受性语言活动中，语言使用者在听音频、看视频和阅读书面文本时接收和处理输入信息。接受性语言活动所需的技能主要包括获取细节信息，理解主旨要义，根据输入信息作出推断，以及理解语气、态度和意图等。接受性语言活动所需的微技能包括：

A. 获取细节信息
R1. 理解明确表达的信息与细节。
R2. 理解考试中的口头或书面指令。
R3. 获取并理解图表中的信息。
R4. 区分客观事实与主观意见。

B. 理解主旨要义
R5. 理解主要观点和支持论点的信息。
R6. 区分主要思想和次要细节。
R7. 对比同一文本内或多个文本中的信息。
R8. 综合同一文本内或多个文本中的信息。

C. 根据输入信息做出推断
R9. 根据课堂讲座、讨论、对话或文本中的信息做出适当的推断。
R10. 使用上下文线索推断单词或句子的含义。

D. 理解语气、态度与意图
R11. 理解语言的交际功能，区分建议、忠告、指示和警告等。

R12. 理解例子、典故、笑话和题外话的使用。

R13. 识别作者/说话者对主题的态度。

R14. 理解作者/说话者的言外之意。

（2）产出性语言活动所需的技能

产出性语言活动包括书面表达和口头表达活动。本考试使用概要写作任务评估书面表达所需的技能，学生需要总结所给篇章的要点并按词数要求写一个概要。本考试采用口头陈述任务评估口头表达所需的技能，学生需要根据所给的图表回答问题。产出性语言活动所需的微技能包括：

A. 书面表达

P1. 在写作时紧扣主题。

P2. 适当地使用背景知识、参考文献或非文本材料、个人观点等来支持、分析和完善论点。

P3. 有效地总结和解释他人的表述。

P4. 描述图表中的信息。

P5. 有序地组织文章以表达主要观点并对观点予以支撑。

P6. 使用适当的过渡来衔接观点和信息。

P7. 在给定时间限制下完成满足长度要求的书面文本。

P8. 展开合乎逻辑的论证。

P9. 掌握标准书面英语的使用，包括语法、措辞、句子结构、拼写和标点符号等。

P10. 使用丰富而符合主题的词汇。

B. 口头表达

P11. 使用丰富的语言来完成口语任务，例如展开描述、总结信息和就一般话题表达观点等。

P12. 掌握标准英语口语的使用，包括语法、措辞和句子结构等。

P13. 在口头表达中流利地表达自己的观点。

P14. 运用衔接手段等使话语清晰连贯。

（3）互动性语言活动所需的技能

互动性语言活动包括书面互动和口头互动。本考试使用在线讨论任务评估学生进行书面互动的能力，学生需要阅读网络论坛的帖子和回复，然后参与讨论并表达自己的观点。本考试采用双人讨论任务评估考生参与口头互动活动的能力，学生需要与合作伙伴就给定主题展开讨论。互动性语言活动所需的微技能包括：

A. 书面互动

IN1. 参与网络书面讨论，陈述和回应一定长度的意见。

IN2. 在网络书面互动中，有效地完成沟通。

IN3. 参与在线交流，对他人的观点进行回应，理解文化含义并做出适当的反应。

IN4. 识别网络书面互动中出现的误解和分歧并加以处理。

B. 口头互动

IN5. 积极参与正式和非正式的讨论，就熟悉的话题发表评论、表达观点、评估提案、提出与回应假设。

IN6. 清晰地概述问题，推测原因或后果，并权衡各种解决方法的优缺点。

IN7. 邀请小组中的其他人发表观点。

IN8. 使他人理解自己的意见和反应。

IN9. 理解他人的表达，并在必要时请求重复、澄清或确认。

三、试卷结构

考试时长为 90 分钟，总分为 100 分。试卷内容与结构如下表所示。

试卷内容与结构

模块	部分	活动类型	题型	题量	分值比重 (%)	时间 (分钟)
1. 视听理解	A. 听力理解	接受性	单选题	12	12	12
	B. 视听理解	接受性	单选题	13	13	8
2. 阅读理解	A. 快速阅读	接受性	填空题, 单选题	9	9	13
	B. 仔细阅读	接受性	单选题	8	16	15
3. 写作	A. 书面表达	产出性	摘要写作	1	15	20
	B. 书面互动	互动性	网络互动	1	10	15
4. 口语	A. 口头表达	产出性	口语陈述	1	15	3
	B. 口头互动	互动性	讨论	1	10	4
总计				46	100	90

四、考试形式

本考试采用计算机化考试形式，所有材料与题目在计算机屏幕上呈现，考生需使用电脑作答。试题材料与题目采用音频、视频、文字、图表等形式呈现。

五、评分标准和方法

听力与阅读部分采用计算机阅卷，口语与写作部分为人工阅卷。本考试报告考生取得的总分，分数范围为 0-100 分。

I. Sample test paper

SJTU International Undergraduate Entrance Examination (English)

Part 1 Listening Comprehension (20 minutes)

In this part, you will hear two audios and watch two videos. You will answer six or seven questions based on each audio or video. For each question, you should choose the best answer from the four choices marked A, B, C and D. All the audios and videos will be played only once. The listening part lasts about 20 minutes.

Section A Audio Comprehension

Directions: *In this section, you will hear two audios. You will answer six questions based on each audio. For each question, you must choose the best answer from the four choices marked A, B, C and D. The audios will be played only once. You can answer the questions as you listen to the audios.*

Recording 1

The time you spend in high school and college can be both fun and rewarding. These can also be some of the busiest years of your life.

Balancing all the demands on your time – a full course load, extracurricular activities, and socializing with friends – can be challenging. With so many competing priorities, sacrificing sleep may feel like the only way to get everything done. But regularly short-changing yourself on quality sleep can have serious implications for school, work, and your physical and mental health.

Alternatively, prioritizing a regular sleep schedule can make these years healthier, less stressful, and more successful long-term.

According to the National Sleep Foundation, high school students (ages 14-17) need about eight to ten hours of sleep each night. For young adults (ages 18 to 25), the range is between seven and nine hours.

How do you know how much sleep you need within this range?

According to Dr. Edward Pace-Schott, a sleep expert, you can answer that question simply by observing how much you sleep when you don't need to get up. "When you've been on vacation for two weeks, how are you sleeping during that second week? If you're sleeping eight or nine hours when you don't have any reason to get up, then chances are you need that amount or close to that amount of sleep," says Pace-Schott.

Most students, however, get far less sleep than the recommended amount. Seventy to ninety-six percent of college students get less than eight hours of sleep each weeknight. And over half of them sleep less than seven hours per night. The numbers are similar for high school students; seventy-three percent of high school students get between seven and seven and a half hours of sleep.

And what about those students who say they function perfectly well on just a couple of hours of sleep? "There're very few individuals who are so-called short

sleepers, people who really don't need more than six hours of sleep. But, there're a lot more people who claim to be short sleepers than there're real short sleepers," says Pace-Schott.

The consequences of sleep deprivation are fairly well established but may still be surprising. Studies have shown that sleep deprivation can create the same level of cognitive impairment as drinking alcohol. And according to research by American Academy of Sleep Medicine, drowsy driving causes an average of 328,000 motor vehicle accidents each year in the US. Drivers who sleep less than five hours per night are more than five times as likely to have a crash as drivers who sleep for seven hours or more.

Over the long term, chronic sleep deprivation can have a serious impact on your physical and mental health. Insufficient sleep has been linked, for example, to weight gain and obesity. And numerous studies have demonstrated a connection between sleep deprivation and mental health disorders such as anxiety and depression.

Questions

1. How much sleep does a high school student need according to the National Sleep Foundation?
   A. About 7-8 hours.
   B. About 6-8 hours.
   C. About 6-7 hours.
   D. About 8-10 hours.

2. How do we know the amount of sleep we need according to Dr. Edward Pace-Schott?
   A. By seeking advice from well-known sleep experts.
   B. By checking the average amount people our age get.
   C. By looking at the amount recommended by health organizations.
   D. By observing how much we sleep when we don't have to get up.

3. What do we learn from the passage about college students?
   A. Most of them sleep less than when they were in high school.
   B. More than half of them sleep less than seven hours.
   C. Almost all of them sleep about eight hours.
   D. Many of them have serious sleep problems.

4. What does Dr. Edward Pace-Schott say about short sleepers?
   A. Their mental health is under-researched.
   B. They usually suffer from sleep disorders.
   C. They normally sleep no more than six hours.
   D. Their number is greater than generally believed.

5. What does the passage say about sleep deprivation?
   A. It can do more harm than alcohol consumption.
   B. It can lead to serious psychological problems.

C. It proves to be the cause of most car accidents.
D. It contributes to weight loss over the long term.

6. What is the passage mainly about?
    A. The major causes of high school and college students' sleep loss.
    B. Ways to improve high school and college students' quality of sleep.
    C. The importance of sufficient sleep for high school and college students.
    D. Tips for high school and college students on how to develop good sleep habits.

Recording 2

Receptionist: University Language Center. How may I help you?

Caller: Yes. I'm calling to find out more information about your program. For example, what kind of courses do you offer?

Receptionist: Well, first of all, the purpose of our program is to provide Chinese learning opportunities to those who hope to master basic functional language skills, let's say, for their job, or to learn Chinese intensively to enter a Chinese college or university.

Caller: Okay. I'm calling for a friend who is interested in attending a Chinese university.

Receptionist: And that's the kind of, uh, instruction we provide, from basic language courses to content-based classes such as Chinese culture and Chinese for business purposes.

Caller: Great. What's your application deadline for the next semester?

Receptionist: Well, we ask applicants to apply no later than two months before the semester begins. [Uh-hum] This gives us time to process the application and issue the student's admission form.

Caller: An admission form?

Receptionist: Oh, an admission form indicates that we are giving permission for the student to study in our program, and then the student takes this form to the Chinese embassy in their country to apply for the student visa.

Caller: Alright. What's the tuition for a full-time student?

Receptionist: It's 14,000 Yuan, about two thousand US dollars.

Caller: And how does one apply?

Receptionist: Well, we can send you an application and you can mail it back to us, or you can fill out our application online at our website.

Caller: And are there other materials I would need to send in addition to the application form?

Receptionist: Uh, yes. You would need to send in a ¥240, or $35, non-refundable application fee [Uh-huh], a sponsorship form indicating who will be responsible financially for the student while studying in our program, and a bank statement showing that you or your sponsor has sufficient funds to cover tuition expenses and living costs for the entire year of study.

Caller: And how can I send these materials to you?

Receptionist: You can either send the application packet by regular mail or you can email it.

Caller: And the application fee?

Receptionist: We accept money orders, traveler's checks, credit cards, or you can pay online.

Caller: Alright. I think that's about it.

Receptionist: Okay, great.

Caller: Oh, may I have your name, please?

Receptionist: Okay. My name's Li Wei. You can just call and ask for me.

Caller: Great. Thank you for your help.

Receptionist: No problem, and please don't hesitate to call again if you have any other questions.

Caller: Okay. Goodbye.

Questions

7. What service does the man say their program provides?
   A. Training in communication skills.
   B. Student visa application.
   C. Language instruction.
   D. Job counseling.

8. What is the woman's purpose of making the phone call?
   A. To apply for a Chinese university.
   B. To make inquiries for her friend.
   C. To sign up for a course she is interested in.
   D. To seek information about the job she desires.

9. What does the man say about the admission form?
   A. Applicants can fill it out on the website.
   B. Only full-time students need to fill it out.
   C. It is to be submitted when the semester begins.
   D. It indicates permission to study in the program.

10. What does the man say about the application form?
    A. It can be accessed online.
    B. It will be sent to the embassy.
    C. It should be completed in Chinese.
    D. It must be mailed back to the office.

11. What material does one need to send in addition to the application form?
    A. A copy of their diploma.
    B. A letter of recommendation.
    C. Evidence of their current level of Chinese.
    D. Proof of their ability to finance their study.

12. What do we learn from the conversation about the application fee?
    A. High.
    B. Fixed.
    C. Negotiable.
    D. Non-refundable.

Section B Video Comprehension

Directions: *In this section, you will watch two videos. You will answer six or seven questions based on each video. For each question, you must choose the best answer from the four choices marked A, B, C and D. The videos will be played only once. You can answer the questions as you watch the videos.*

Video 1

    Time for school! It's no surprise that many of us are determined to study smarter instead of longer, but which study tips and tricks actually work scientifically and can help you get those perfect grades?

    First step, research shows that study sessions are most effective in small short chunks.

    Instead of cramming in a ten-hour study session, it's much more effective to spread it out into twenty thirty-minutes sessions over a few weeks. This is because your brain is better at encoding information into the synapses in short repeated sessions as opposed to one large one. And this is why even learning different skills, whether it's swimming, tennis, or a singing lesson, often follows the same format.

    And while cramming and pulling all-nighters may be a ritual, it turns out that this is linked to the lowest grades. After prolonged study sessions, reasoning and memory may be negatively affected after four whole days. Instead, setting up specific times in a day, or during the week, just to study primes your brain by creating a routine, and over time studying actually becomes easier, as your brain is trained to learn in those moments.

And while many of us spend hours passively rereading our notes or highlighting a textbook, studies have shown this to be ineffective. It doesn't improve your understanding of topics nor does it link key concepts together. It can even be detrimental, as it draws your attention to less important information.

Flashcards, on the other hand, are proven to be excellent memory reinforcement tools whether during your scheduled study times or during off times like a bus ride home. It also helps to have a specific goal for each study session. Instead of aimlessly studying, pick one aspect you're focused on – whether it's balancing chemical equations or learning how to conjugate French verbs.

If you can't explain it simply, then you don't understand it well enough. In studies where individuals were asked to learn a passage and then half were told they would be tested on the material while the other half were told they would have to teach it to other students, participants expecting to teach it did much better on understanding the main points. When you're expected to teach, your brain organizes the information in a more logical coherent structure.

Of course, practice, practice, practice! Not only do practice tests put your brain in the environment but even if you make mistakes, they help identify gaps in your knowledge. Practice tests have also been shown to increase confidence, thereby leading to better performance.

So where should you be studying? Research shows that having a designated sacred spot for study that's well equipped with every tool you might need is best. Just like setting times, this primes your brain for studying.

Have an awesome study playlist? Not so fast!

While some studies have shown that certain types of classical music can help improve concentration, a recent study has shown that learning with rhythmic background noise can be detrimental to focus and those not using music fare much better.

Questions

13. What do we learn about study sessions from this video?
    A. It is best to study in 30-minute sessions.
    B. Short repeated sessions are more effective.
    C. It is better to learn skills like swimming in prolonged sessions.
    D. Longer sessions contribute more to improving reasoning skills.

14. What does the speaker say about flashcards?
    A. They bring a lot of fun to our study.
    B. They help us focus on a specific study goal.
    C. They draw our attention to less important points.
    D. They prove to be ineffective in enhancing memory.

15. What do we learn about the participants who were asked to learn a passage and teach it to others?
    A. They showed more self-confidence.

B. They felt a higher level of anxiety.
C. They did better in understanding its main points.
D. They had more trouble in memorizing its key points.

16. What benefit do practice tests provide according to the speaker?
   A. They can help improve our study skills.
   B. They can help identify our weaknesses.
   C. They enable us to learn what is beyond the textbook.
   D. They enable us to better comprehend what we learned.

17. What does a recent study on music effects suggest?
   A. Classical music helps little to improve concentration.
   B. Certain types of music can affect our ability to focus.
   C. Some background music can boost learning efficiency.
   D. Effects of music on learning vary from person to person.

18. What is this video mainly about?
   A. Tips on improving study efficiency.
   B. A comparison of various study methods.
   C. The difficulties students have in developing good study habits.
   D. The reasons why some students cannot concentrate on their study.

Video 2

Over the past 60 years, the amount of sugar consumed as part of the typical Western diet has increased dramatically. Significant increases in sugar consumption have been documented in most countries where heavily processed food has become readily available. Surprisingly, some experts estimate that only one-sixth of our sugar comes from desserts or foods that we think of as sweets. The majority of our sugar comes in the form of highly processed food and sweetened beverages. Many people are becoming aware of the need to reduce their sugar intake in order to maintain a healthy body weight. But what many people still aren't aware of is the fact that sugar under a variety of different pseudonyms is added to so many foods that we don't expect to contain sugar, things like packaged breads, condiments, chips, sauces, and salad dressings. In 2015, the World Health Organization released new guidelines, strongly recommending that all adults and children reduce their sugar intake to less than 10% of total calories consumed. These recommendations go on to suggest that a further reduction of sugar intake to less than 5% of total calories would likely have additional health benefits. These recommendations focus on free sugars, those that are added to foods by the manufacturer, the cook, or the consumer, as well as sugars that are naturally present in honey, syrups, and fruit juices. But they don't apply to intrinsic sugars found in whole fruits and vegetables. Because the World Health Organization found no reported evidence linking the consumption of intrinsic sugars to adverse health effects, the sugar that naturally occurs in milk is also excluded from that 5%.

There's a growing consensus that we need to cut down on our sugar consumption and yet there may be a downside to vilifying sugar the way we did with the dietary fats. If we only emphasized the need to cut down on our sugar intake without simultaneously emphasizing moderation and balance in our diet as a whole, we risk a situation where fats and animal proteins are seen by the general public as free food. And the processed food industry, again steps in and super sizes.

It's been interesting to read the research and see the shift in attention from treating fat as the evil nutrient to treating sugar as the evil nutrient. Now, we went overboard on fat. It turns out fat is not as evil as we thought and saturated fat is not necessarily the thing to worry most about in your diet. And in fact, our obsession with saturated fat led us to promote trans-fat, which turned out to actually be lethal. So I'm very wary of focusing all our attention on a single nutrient. Sugar's been part of the human diet for a very long time. It's prized by people all over the world. We have evolved to like the flavor of sugar for very good reasons, but we are eating too much of it. And I think we definitely need to cut down on the amount of sugar we're eating, but I think companies need to disclose added sugar, which they don't now have to do in processed foods. I'm very concerned that sugars being added to foods that never were sweetened before. Things like bread now have sugar in them, and condiments of all kinds, because if you put more sugar in a food you will sell more of it. So we need to be conscious of it. But does it explain everything about our diet? No, it really doesn't.

Questions

19. What does the woman say about sugar consumption?
    A. It has risen considerably over the past six decades.
    B. It has begun to decline in some Western countries.
    C. Its link to obesity has been extensively researched.
    D. Its effects on health have been well documented.

20. What is a major source of sugar people consume according to the video?
    A. Fruits.
    B. Desserts.
    C. Fast food.
    D. Processed food.

21. What does the woman say is still unknown to many people?
    A. A moderate amount of sugar can be good for their health.
    B. Sugar intake needs to be reduced to ensure a healthy weight.
    C. Different types of sugar can produce different health effects.
    D. Sugar appears in many foods that they don't expect to contain it.

22. What level of sugar intake could bring additional health benefits according to the World Health Organization?
    A. Below 10% of total calories.
    B. Below 5% of total calories.

    C. Less than 4% of total calories.

    D. Less than 2% of total calories.

23. What do we learn about free sugars?

    A. They are found in whole fruits.

    B. They naturally occur in milk.

    C. Their consumption should be controlled.

    D. Their health risks are often exaggerated.

24. What does the man say about sugar?

    A. It is not as evil as people thought.

    B. People are consuming too much of it.

    C. It may cause more serious health problems than fat.

    D. Companies should reduce its amount in their products.

25. What is this video mainly about?

    A. Methods of cutting down on daily sugar consumption.

    B. The effects of certain types of sugar on people's health.

    C. Trends in sugar consumption and recommendations on sugar intake.

    D. The health problems caused by sugar and advice on how to avoid them.

Part 2 Reading Comprehension (30 minutes)

In this part, you will read three passages and answer some questions after reading each passage. You will have 30 minutes for this part.

Section A Expeditious Reading (13 minutes)

Directions: *In this section, you will read one passage with four sentences attached to it. There are some blanks in the passage and you must use the given sentences to fill in the blanks. After this, you will answer five questions about the passage. For each of the questions, you must choose the best answer from the four choices marked A, B, C and D. You will have 13 minutes for this section.*

The science behind how face masks prevent coronavirus

What evidence do we have that wearing a mask is effective in preventing COVID-19?
Q26_____

One category of evidence comes from laboratory studies of respiratory droplets and the ability of various masks to block them. For example, an experiment using high-speed video found that hundreds of droplets ranging from 20 to 500 micrometers were generated when saying a simple phrase, but that nearly all these droplets were blocked when the mouth was covered by a damp washcloth.

But the strongest evidence in favor of masks comes from studies of real-world scenarios. A recent study published in *Health Affairs*, for example, compared the COVID-19 growth rate before and after a mask requirement was imposed in 15 states and the District of Columbia in the US. It found that mask requirements led to a slowdown in daily COVID-19 growth rate, which became more apparent over time. The first five days after a mask mandate, the daily growth rate slowed by 0.9 percent compared to the five days prior to the mandate; at three weeks, the daily growth rate had slowed by 2 percent.

Two compelling case reports also suggest masks can prevent transmission in high-risk scenarios. In one case, a man flew from China to Toronto and subsequently tested positive for COVID-19. He had a dry cough and wore a mask on the flight, and all 25 people closest to him tested negative for COVID-19. In another case, two hair stylists in Missouri had close contact with 140 clients while sick with COVID-19. Everyone wore a mask and none of the clients tested positive.

Do masks protect the people wearing them or the people around them?

"I think there's enough evidence to say that the best benefit is for people who have COVID-19 to protect them from passing COVID-19 to other people, but you're still going to get a benefit from wearing a mask if you don't have COVID-19," said Peter Chin-Hong, an infectious disease specialist.

Masks may be more effective as a "source control" because they can prevent larger droplets from turning into smaller droplets that can travel farther.

Q27_____

"What you want is 100 percent of people wear masks, but you'll settle for 80 percent," said Chin-Hong. In a recent paper, researchers predicted that 80 percent of the population wearing masks would do more to reduce COVID-19 spread than a strict lockdown.

The latest forecast from the Institute of Health Metrics and Evaluation suggests that 33,000 deaths could be avoided by October 1 if 95 percent of people wore masks in public.

Even if you live in a community where few people wear masks, you would still reduce your own chances of catching the virus by wearing one, said Chin-Hong.

Does the type of mask matter?

Q28_____ The best mask is one you can wear comfortably and consistently, said Chin-Hong. N95 masks are only necessary in medical situations such as intubation. Surgical masks are generally more protective than cloth masks, and some people find them lighter and more comfortable to wear.

The bottom line is that any mask that covers the nose and mouth will be of benefit.

"The concept is risk reduction rather than absolute prevention," said Chin-Hong. "You don't throw up your hands if you think a mask is not 100 percent effective. That's silly. Nobody's taking a cholesterol medicine because they're going to prevent a heart attack 100 percent of the time, but you're reducing your risk substantially."

However, Chin-Hong cautioned against masks with valves (designed to make it easier for the wearer to breathe) because they do not protect those around you. These one-way valves close when the wearer breathes in, but open when the wearer breathes out, allowing unfiltered air and droplets to escape. Chin-Hong said anyone wearing a valved mask would need to wear a surgical or cloth mask over it. "Alternatively, just wear a non-valved mask," he said.

Q29_____

A mnemonic that Chin-Hong likes is the "Three W's to ward off COVID-19:" wearing a mask, washing your hands, and watching your distance.

"But of the three, the most important thing is wearing a mask," he said. Compared to wearing a mask, cleaning your iPhone or wiping down your groceries are "just distractors." There's little evidence that fomites (contaminated surfaces) are a major source of transmission, whereas there's a lot of evidence of transmission through inhaled droplets.

"You should always wear masks and socially distance," said Chin-Hong. "I would be hesitant to try to parse it apart. But, yes, I think mask wearing is more important."

Questions 26-29

A. If we're practicing social distancing, do we still need to wear masks?
B. How many people need to wear masks to reduce community transmission?
C. Studies have compared various mask materials, but for the general public, the most important consideration may be comfort.
D. There are several strands of evidence supporting the effectiveness of masks.

30. Where does the strongest evidence supporting the effectiveness of masks come from?
    A. Laboratory experiments.
    B. Studies of real-world scenarios.
    C. Representative case studies.
    D. Research by manufacturers.

31. What does the passage say about the man who flew from China to Toronto?

A. His client tested positive for COVID-19.
B. His client had close contact with 140 people.
C. He did not wear a mask as required.
D. He did not transmit the virus to others.

32. What percentage of the population wearing masks would do more to curb COVID-19 spread than a lockdown according to some researchers?
    A. 80 percent.
    B. 90 percent.
    C. 95 percent.
    D. 100 percent.

33. What is said about N95 masks?
    A. They should be made lighter.
    B. They provide the best protection.
    C. They are more suitable for medical staff.
    D. They are only needed in special medical situations.

34. What does Chin-Hong think of masks with valves?
    A. They may cause breathing difficulties.
    B. They protect the wearer but not others.
    C. They are as efficient as surgical masks.
    D. They are more protective than cloth masks.

Section B Careful Reading (17 minutes)

Directions: *In this section, you will read two passages. Each passage is followed by four questions. For each of them you must choose the best answer from the four choices marked A, B, C and D. You will have 17 minutes for this section.*

Passage 1

The tradition of study abroad in the US grew out of the 'Junior Year Abroad' model developed in the first part of the 20th century. While a declining number of US students still choose to study abroad for a full academic year, the trends in study abroad are moving much more in the direction of short-term experiences. In fact, enrolment in study-abroad programmes lasting eight weeks or less has grown by nearly 250 percent over the past decade according to data from the Institute of International Education.

This trend towards short-term study abroad makes it clear that students' bandwidth for time spent abroad is narrowing. Because of this, universities have to think more flexibly about study-abroad models. Traditional year-long, semester, exchange and even summer models no longer cut it. People working in international education in the US are putting a lot of effort into how to make the most out of the student experience during short periods abroad. They are also coming up with new models that can respond to the pressures – both academic and otherwise – facing students today.

Some US universities are redesigning service learning and volunteer programmes, so that they have more direct educational results (i.e., students get course credit for doing them). Other institutions have introduced gap-year programmes, which give students the opportunity to defer their place at college and first take part in a gap year set up by the university. Yet other institutions have introduced freshman abroad programmes, which take new students abroad for a portion of their first year.

Data from the Institute of International Education shows that US student enrolment in study abroad has increased by 150 percent in the last decade.

As study abroad has grown in the US, so has the need to support it well. Many colleges and universities rely on structures and services outside of their own institution – usually in the form of third-party providers – to provide diverse programme options. Over the years, this ecosystem of support has developed into a growing industry. There's no official data on this, but it is estimated that some 40-50 percent of US students going abroad do so through provider organizations.

Despite this growth, the number of US students signing up to study abroad is still very low compared with total student enrolment. It is estimated that less than two percent of US undergraduates study abroad each year and fewer than one in ten Americans graduate from university with a study-abroad experience.

On many US campuses, study abroad has grown outside of the academic side of the institution. Because of this – and perhaps a variety of other reasons – the academic value of study abroad is not always understood. It is still largely seen as an educational 'extra' and is not always understood by employers. Recent British Council research also shows that the main non-academic factors motivating US students to study abroad is to experience another culture or have an adventure. This aligns perhaps with broader public perceptions of study abroad.

Questions

35. What trend has been observed in the US?
    A. More and more students only want to study abroad for a few weeks.
    B. The number of students who are willing to study abroad is declining.
    C. More and more students want to study abroad during their junior year.
    D. The number of students wishing to study abroad for a full year is growing.

36. What do some US universities do in reaction to the new trend?
    A. Provide summer programmes for students looking to study abroad.
    B. Give students opportunities to volunteer when studying abroad.
    C. Bear a portion of the expense of the study-abroad programme.
    D. Allow students to spend part of their freshman year abroad.

37. What do we learn from the passage about the academic value of study abroad?
    A. It has been better understood by many college students and their parents these days.
    B. It is a key factor motivating students to study hard at college.
    C. It is deemed conducive to college students' character building.

D. It is no longer a major consideration when students make study-abroad decisions.

38. What is the main aim of study abroad as perceived by the general public?
    A. To seek independence.
    B. To learn a foreign language.
    C. To experience a different culture.
    D. To better one's academic performance.

Passage 2

Previous works that provide tips on how to successfully write research papers, theses, dissertations, and journal articles have emphasized that writing is like any other skill: it has to be developed, taught, and practiced daily. Although graduate students are taught how to teach during their graduate education, through seminars and workshops, Silvia laments that they are not taught how to write: "the most common model of training is to presume that graduate students will learn about writing from their advisors." The same argument could be made about reading.

In previous works, readers are taught how to structure their time to facilitate writing, how to outline their thoughts to prepare to write, and how to structure a paper to submit to a journal. Professional academic writing, Silvia argues, is a serious business that entails tremendous complexity, as the literature on a given topic must be extensively covered, data carefully analyzed, and the descriptions of research methods precisely worded. To do so, Silvia suggests, we may even have to read scientific journal articles we do not particularly like. The act of reading, again, is treated as an activity that is less consequential than writing.

This book is necessary because reading is often a blindly assumed and unexamined part of the writing process, for undergraduate and graduate students alike. If writing is learned throughout undergraduate and graduate education, as part of the honors thesis, master's thesis, PhD dissertation, and journal-article writing process, then, to my knowledge, no such formal and systematic training exists for reading in the social sciences; instead, students bring to universities – undergraduate and graduate – the reading habits and techniques they acquired in their formative years in primary/elementary schooling. Unlike philosophy and literary criticism, where careful reading is taught to students at the undergraduate and graduate level, disciplines in the social sciences tacitly expect students to already be competent readers.

With such an unexamined assumption in place, it is not surprising that advanced undergraduates (third- and fourth-year students in institutions of higher education), and graduate students have trouble reading critically in order to write their undergraduate research papers, honors theses, and graduate-level texts. Rather than assuming that students already possess the skills necessary to be critical readers, this book teaches students – advanced undergraduate students writing research papers and honors theses, and graduate students writing theses and dissertations – how to read so that they are able to maximize their output in the writing process. Reading critically is an essential skill at all levels of instruction at university.

Questions

39. What is emphasized in previous works on how to write academic papers successfully?
    A. Writing needs to be practiced a lot.
    B. Writing needs a lot of patience.
    C. Writing can be self-taught.
    D. Writing can be tiresome.

40. What does Silvia say about professional academic writing?
    A. It is a serious and complex task.
    B. It should be clearly structured.
    C. It results from huge amounts of reading.
    D. It requires a great many references.

41. What can be inferred about disciplines in the social sciences?
    A. They demand that students should read extensively.
    B. They do not provide systematic training in reading.
    C. They place emphasis on students' careful reading skills.
    D. They do not offer reading instruction that suits students' needs.

42. What is the author's purpose of writing this passage?
    A. To explain how to read journal articles in the social sciences.
    B. To introduce a book that teaches how to read academic articles.
    C. To clarify the differences between developing reading and writing skills.
    D. To stress the importance of academic writing skills for college students.

Part 3 Writing (35 minutes)

In this part, you will complete two writing tasks. In the first task, you will write a short summary of a passage. In the second task, you will join in an online discussion by providing a written response. You will have 35 minutes for this part.

Section A Written Production (20 minutes)

Directions: *In this task, you will read a passage and then summarize the main points of the passage in 80-100 words. You will have 20 minutes to finish this task.*

Summer internships have long been taken for granted in one's academic career, a necessary step to craft the ideal resume to appeal to potential employers and graduate programs. This expectation may seem out of grasp for many college students. The typical attitudes surrounding summer internships ignore the many obstacles that students face as they plan for their future.

Unpaid internships place a financial burden on students as they juggle loans, rent and family responsibilities. These unpaid involvements seem necessary in a work

environment that increasingly values work experience, even for entry-level positions. Students are compelled to take on the role of a regular staff member, conducting difficult and strenuous tasks for no compensation. These internships make up a substantial 43% of all for-profit opportunities according to the National Association of Colleges and Employers.

While many may view this lack of pay as a necessary trade-off to accumulate experience and credit hours, this position ignores the reality of the opportunity cost of such experiences. Since students have to sacrifice paid positions to participate in unpaid internships, these opportunities exclude those from a low socioeconomic background. While some may have support to cover living expenses like rent and food, those that don't cannot afford to spend their summer without earnings.

Similarly to these financial obstacles, summer internships may be inaccessible to those that require the summer semester to complete their degree. These students may have responsibilities outside of academia that prohibit them from taking on a full course load during the academic year, like jobs, family obligations or chronic illnesses. In the midst of balancing shifts, arranging childcare or attending medical appointments, these students rely on the summer to finish their degree in a timely manner. This population is not an insignificant one. Part-time students make up over a quarter of overall enrollment in four-year universities.

Given these barriers to summer internships, academic institutions and the corporate world must adopt a new outlook on summer involvement. While summer internships may provide students with increased opportunities, they are not the sole path to success. By holding a job through summer, students demonstrate the ability to receive instructions from managers, commit to a regular schedule and communicate with others in a pleasant and professional manner. By participating in summer classes, students display a continued thirst for knowledge.

Section B Written Interaction (15 minutes)

Directions: *In this task, you will read a post and two responses from an online forum, and then join in the online discussion by writing a response to express your views. You will have 15 minutes to finish this task. Your response should be at least 80 words but no more than 100 words.*

Post

I really need some advice on homesickness. I am leaving for college in 10 days. This is my third year of law school and I will be 10 hours away from my family again after finishing the second year at home due to the pandemic. I'm really connected to my family and I don't want to leave them. I won't be seeing them more than once a month and I keep crying, thinking about the fact that this might be my last 10 days actually living with my family. I never learned how I should deal with this. Anything that might help?

Response 1

I think we all experience these feelings when we leave familiar places and people, or experience change. I truly think your feelings will pass once you are there. Remember it's just one year. COVID caused a lot of people to go home and now that it's almost gone, it's time to be back on campus again.

Response 2

You just take it easy. It's not a whole year. It's 9 months broken up with a month in the middle for Christmas. Try to have a family member visit or you visit home once a month. Take day or weekend trips to interesting places nearby. Meet somewhere in the middle. Get an internship to keep busy and move your focus to someone else's problems. Getting a girlfriend or boyfriend always helped me the most, if I am being honest.

Now please give your response:

Part 4 Speaking (5 minutes)

In this part, you will be given two tasks, an individual presentation task and a voicemail task. In the first task, you will answer two questions based on a graph. In the second task, you will reply to a voicemail. The speaking part lasts about 5 minutes.

Section A Oral Production (2.5 minutes)

Directions: *In this task, you will answer two questions based on the graph shown on the screen. You will have 1 minute to look at the graph and the questions and prepare what you are going to say. For each question, you will have 45 seconds to give your response.*

Number of people living in urban and rural areas, World, 1960 to 2020

Source: World Bank based on data from the UN Population Division
Note: Urban populations are defined based on the definition of urban areas by national statistical offices.
OurWorldInData.org/urbanization • CC BY
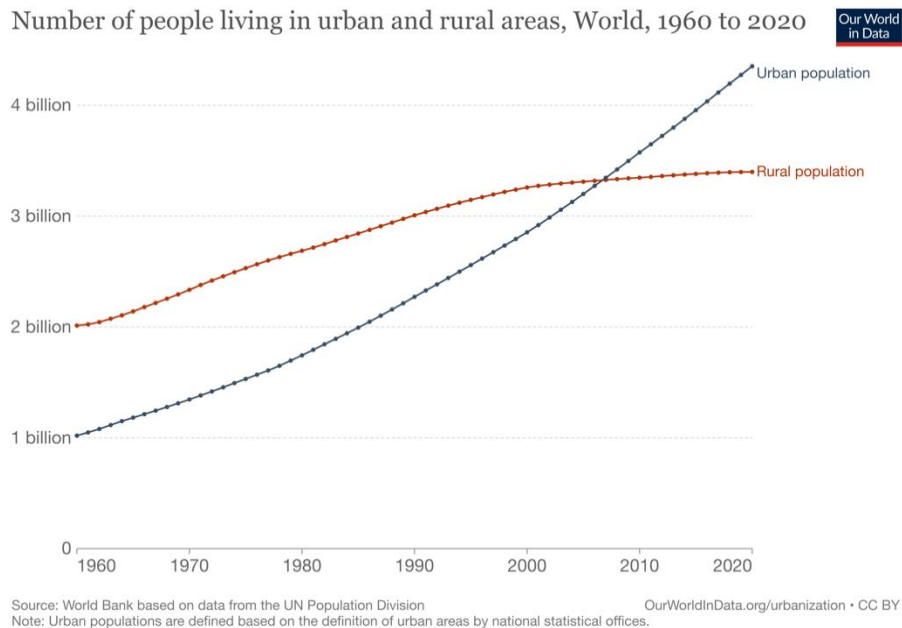
Question 1: What information can we get from the graph?

Question 2: What are the advantages and disadvantages of living in cities?

Section B Oral Interaction (2.5 minutes)

Directions: *In this task, you will respond to a voicemail message. First listen to the voicemail, and then you will have 30 seconds to prepare and 1 minute to leave your voicemail message.*

Listen to the message from your friend about remote learning. Then, reply to the message. In your voicemail message, you should:

(1) Comfort your friend.
(2) Give your friend some suggestions.

Now listen to the message.

Hi. It's Li Wei here. I recently learned that my university's campus will remain closed and I need to attend remote classes for the whole semester. I am a bit stressed. The hardest part about attending college remotely is maintaining a routine and motivation. For in-person classes, I would get dressed and have to physically be present which put a start to my day. Now, I sometimes turn on my computer as soon as I wake up and not give myself the mental space ahead of time to start my day. I miss everything about school.

Key to multiple-choice questions

1.D   2.D   3.B   4.C   5.B   6.C   7.C   8.B   9.D   10.A

11.D   12.D   13.B   14.B   15.C   16.B   17.B   18.A   19.A   20.D

21.D   22.B   23.C   24.B   25.C   26.D   27.B   28.C   29.A   30.B

31.D   32.A   33.D   34.B   35.A   36.D   37.D   38.C   39.A   40.A

41.B   42.B

上海交通大学国际本科生招生考试语文科 I 考试大纲

（非汉语言专业）

2021 年 11 月

一、 考试目的

上海交通大学国际本科生招生考试语文科 I 考试（非汉语言专业）（以下简称"本考试"）是为上海交通大学国际本科生招生而进行的选拔考试。考试旨在测试考生的汉语理解、分析、表达等能力，考查考生是否具备充分的语文核心素养和必备知识，是否掌握用中文进行学术活动的基本能力。

二、 考核的技能

本考试要求考生已掌握 3500 字以上的常用字和全部现代汉语常用实词和虚词及其在语境中的使用方法；具备各类体裁和题材的现代文阅读分析能力；具备以满足学术研究为目的的写作能力；具备以分析问题与解决问题为目的的口头表达能力。

1. 掌握现代汉语常用汉字、基本词汇、基本句式及其用法，理解基本的修辞格。
2. 阅读中，能够理解重要概念、重要句子的含义；能够把握文章思路并分析文章结构；能够归纳内容要点、概括中心思想。
3. 阅读中，能够分析人物形象及其语言和表达特点，理解和评价作品的内涵特色、思想内容、观点态度和审美取向。
4. 写作中，能够有目的地综合运用中文对指定问题进行探讨，阐述个人观点，提出解决问题的方法，形成符合指定文体的文本。
5. 口语表达中，能够有目的地综合运用中文对指定问题进行探讨，阐述个人观点，提出解决问题的方法，完成口头交际任务。

三、 试卷结构

本考试试卷由三个部分构成，第一部分满分为 40 分，第二部分满分为 40 分，第三部分满分为 20 分，合计为 100 分。考试时长为 90 分钟。各部分测试内容、测试技能、提示材料类型、题型和所占分值比例、题目数量等如下表所示。

试卷内容与结构

模块	测试技能	测试题型	题目数量	分值比重（%）	时间（分钟）
一、阅读理解	理解 分析 归纳	选择题	20	40	40
二、作文	书面表达 见解抒发	作文（就题目或材料写一篇不少于400字的作文）	1	40	45
三、口头表达	理解 分析 口头表达	口语表达（准备2分钟后进行至少3分钟录音）	1	20	5
总计				100	90

四、 考试形式

本考试采用计算机化考试形成，所有题型在计算机屏幕上呈现，试题材料采用文字、图画、照片等形式呈现。

五、 评分标准和方法

1. 本考试单选客观题的部分，选择正确得分，选择错误不得分。

2. 写作评分标准（40分）：
   (1) 一档（40-31分），符合题意、中心突出、内容充实、表达流畅、没有语病及错别字、卷面格式规范整洁。
   (2) 二档（30-21分），符合题意、中心较为突出、内容较为充实、表达较为流畅、语病及错别字较少、卷面格式基本规范整洁。
   (3) 三档（20-11分），基本符合题意、中心基本明确、内容单薄、表达存在一定问题、语病及错别字较多、卷面及格式规范性存在问题，长度不足400字。
   (4) 四档（10-1分），偏离题意、中心不明确、内容不当、存在严重的语病及大量错别字、文章难以理解、卷面及格式规范性存在严重问题，长度严重

低于 400 字。

注：空白卷为 0 分。

3. 口头表达评分标准（20 分）：
   (1) 一档（20-16 分），扣题，观点明确、论述逻辑清晰、表达流利、没有语法结构错误。
   (2) 二档（15-11 分），扣题，观点较为明确、论述逻辑较为清晰、表达较为流利、有少量语法结构错误。
   (3) 三档（10-6 分），勉强扣题，能就个人观点展开论述但逻辑条理较差，有较多语法结构错误，表述时长略短于 3 分钟。
   (4) 四档（5-1 分），跑题，个人观点不明确，论述逻辑混乱，有很多且严重语法结构错误，表述时长少于 2 分钟。

注：不作答者 0 分。

上海交通大学国际本科生招生考试语文科 II 考试大纲

（汉语言专业）

2021 年 11 月

一、 考试目的

上海交通大学国际本科生招生考试语文科 II 考试（汉语言专业）（以下简称"本考试"）是为上海交通大学汉语言专业国际本科生招生而进行的选拔考试。旨在全面测试考生的汉语言素养和综合运用汉语言知识的能力，考查考生是否具备进一步学习所必备的语言知识、技能、及运用上述知识和技能满足在华生活和进行学术研究需要的基本能力。

二、 考核的技能

1. 掌握能够满足在华生活以及完成高校基本学习任务所需要的汉字、词汇、语法知识点及其在具体语境中的用法。
2. 具备基本的中文听、说、读、写能力，能够理解并运用中文，满足日常生活和学术深造的需要。

三、 试卷结构

本考试由四个部分构成，第一部分满分 30 分，第二部分满分 30 分，第三部分满分 20 分，第四部分满分 20 分，合计为 100 分，考试时长为 90 分钟。各部分测试内容、测试技能、提示材料类型、测试题型和所占分值比例、题目数量等如下表所示。

试卷内容与结构

模块	测试知识技能	测试题型	题 目 数量	分值比重 （%）	时间 （分钟）
一、听力理解	汉语听力技能及与之相关的语言要素知识	选择题	15	30	20
二、阅读理解	词语在语境中的运用 语篇理解 主题分析	选择题	30	30	40
三、作文	书面表达	作文（不少	1	20	25

	学术写作	于 300 字)			
四、口语表达	口头表达技能	口语录音	1	20	5
总计				100	90

四、 考试形式

本考试采用计算机化考试形式，所有题型在计算机屏幕上呈现。试题材料采用文字、图画、照片等形式呈现。

五、 评分标准和方法

1. 本考试单选客观题的部分，选择正确得分，选择错误不得分。

2. 写作评分标准（20 分）：

(1) 一档（20-16 分），符合题意、中心突出、内容充实、表达流畅、词汇和语法偏误及错别字很少、卷面格式规范整洁。

(2) 二档（15-11 分），符合题意、中心较为突出、内容较为充实、表达较为流畅、词汇和语法偏误及错别字较少、卷面格式基本规范整洁。

(3) 三档（10-6 分），基本符合题意、中心基本明确、内容单薄、表达存在一定问题、词汇和语法偏误及错别字较多、卷面及格式规范性存在问题，长度不足 300 字。

(4) 四档（5-1 分），偏离题意、中心不明确、内容不当、存在严重的词汇和语法偏误及大量错别字、文章难以理解、卷面及格式规范性存在严重问题，长度严重低于 300 字。

注：空白卷为 0 分。

3. 口头表达评分标准（20 分）：

(1) 一档（20-16 分），符合题意、论述清晰、发音不影响理解、词汇、语法偏误很少，表达流利。

(2) 二档（15-11 分），符合题意、论述较为清晰、发音比较影响理解、词汇、语法偏误较少，表达较为流利。

（3）三档（10-6 分），能够表达出完整观点、论述不够清晰、发音影响理解、词汇、语法偏误较多，表达不够流利，时长略短于 2 分钟。

（4）四档（5-1 分），无法表达出完整观点、论述很不清晰、发音严重影响理解、词汇、语法偏误很多，表达困难，时长严重短于 2 分钟。

注：不作答者 0 分。

上海交通大学国际本科生招生考试语文科I考试试卷

（样卷）

一、现代文阅读

（共 20 题，每小题 2 分）

（一）

稻米传奇

文慧

① 谁是稻米的最早驯化者？对于这一问题曾一度众说**纷纭**。瑞士的植物学家阿方斯·德康多尔，最早提出水稻栽培起源于印度。虽然他也曾提过，在公元前 2800 年左右的中国，水稻作为"五谷"之一很有可能已经被种植，但因为在印度被发现的栽培品种更多，所以彼时流行将印度定为栽培水稻的起源中心。直到 1917 年，中国南方各地发现的稻种数量已经与印度不相上下，水稻原产于中国的发声就开始日益响亮起来。20 世起 70 年代，浙江余姚县河姆渡村发现的 7000 年前人工栽培稻遗址备受瞩目。一方面，它推翻了中国稻米由印度传入的说法，证明中国才是世界上最早种植水稻的国家（　）另一方面，人们发现早期的中国在黄土高原地区农耕文明发源较早的同时，其南方也开始早早萌芽了自己的农业文化。2011 年，美国圣路易斯华盛顿大学与纽约大学合作开展了一项水稻 DNA 基因研究。研究表明，栽培水稻的起源时间大致在公元前 8500 年前，地点在长江中下游一带。在这里，野生稻米被驯化为粳稻，中国的粳稻随后由商人和农民传到印度，与恒河流域的野生稻杂交之后变成籼稻，后又传回中国。由此，中国水稻种植起源说算是铁板钉钉，华夏祖先才是最早驯化野生稻的人。

② 可以说，中国稻米的栽种史是一部经济和文明的发展史。从人口历史数据来看，北宋以前中国人口数量从未超过 6000 万，与之对应的，是从商周时期到汉唐时期中国北粟南稻、粟居首位、稻居其次的格局。而伴随中国历史上几次人口南迁带来的南方土地开发，稻的地位开始超越粟。特别是从 11 世纪起，源自越南的占城稻传入中国，与本地的晚稻配合成为双季稻，大大增加了南方稻米的产量，南宋人口也迅速突破亿的大关。随着历史进程中人口的迁徙和流动，以稻米为基础的长江文明与黄河流域的粟作文明□□辉映，前者逐渐发展出了繁荣的稻米文明。到了清朝末年，南方经济超越北方，国内人口也达到了 4 亿多。在这些重大转变的背后，稻米的推动作用功不可没。

③ 作为稻米的故乡以及最大的稻米产区，中国的稻作技术和稻米文化影响了世界。在过去的几千年里，稻米之路不仅为许多民族带去了食粮，更影响了这些国家人们的饮食习惯、生活习俗，在这个过程中，稻米将中国和整个亚洲连接到一起，最终塑造出独特的"稻米文化圈"。

（有删改）

1. 对"纷纭"一词注音正确的一项是（　　）

    A. fēn tán　　B. fēn yún

    C. pàn tán　　D. pàn yún

2. 选择最恰当的词填入第②段空格处

    A. 互相　　B. 交相　　C. 共同　　D. 相合

3. 根据上下文，选择最恰当的标点填入第①段的括号处

    A. 逗号　　B. 句号　　C. 分号　　D. 冒号

4. 下列关于水稻种植起源认定过程的表述，不正确的一项是（　　）

    A. 因为恒河流域最早出现籼稻，瑞士人阿方斯·德康多尔提出水稻栽培起源于印度。

    B. 科学家通过水稻 DNA 基因研究确认中国长江中下游一带是水稻种植的起源地。

    C. 中国是世界上最早种植水稻的国家，浙江省余姚县河姆渡村人工栽培稻遗址证实了这一点。

    D. 当在中国南方发现的稻种数量与印度不相上下时，中国水稻种植起源说呼声渐响。

5. 下列对中国水稻种植历史的概括和分析，不正确的一项是（　　）

    A. 南迁移民推动了水稻种植，他们带来了先进种植技术，并与南方合适的气候、土壤相结合。

    B. 伴随着南方土地开发，稻的地位开始超越粟，粟居首位、稻居其次的格局发生改变。

    C. 越南占城稻与南方本地晚稻配合成双季稻，稻米产量与宋朝人口数量也因此大幅增长。

    D. 清朝末年，得益于水稻种植的推动，南方经济超过北方，稻米文明取代了粟米文明。

（二）
《古诗十九首》的人生主题

    《古诗十九首》最早收录于南朝萧统《文选》，被刘勰誉为"五言之冠冕"。学界主流意见认为这是作于东汉后期的文人诗，这一意见证据较为充分，其说可从。关于这组诗歌的主题，古人曾有许多议论，自《文选》以来直至明清士人，论者多将诗歌与政治及士人出处相牵合。比如解"浮云蔽白日"一句，李善就认为这是"以喻邪佞之毁忠良"，后人沿着这个视角继续发挥，认为这是远在的逐臣思念君主之辞。近代以来，朱自清、马茂元等学者对《古诗十九首》做了大量的解释工作，纠正了前人的许多错误看法，对诗歌的艺术性研究进行了有益探索。

    时至今日，就《古诗十九首》的主题来说，学界仍有不同见解。笔者认为，《古诗十九首》作为一组诗歌，文本内部应当具有一定的共通性，其中贯穿的精神主旨可视为主题所在。而贯穿于整组诗歌的就是对人生的感喟与思索，人生乃其根本的关心所在。笔者尝试从三个方面来阐述。

第一个层面，文士在诗中表达了他们对人生真相的洞察。《古诗十九首》实际上是在谈论人生的痛苦。整组诗的开篇就是"行行重行行，与君生别离"，汉代士人为了追求功名，经常要游学、仕宦，由此导致的与亲人的分别往往达数年甚至更久。因生死而造成的别离非人力所能及，但被迫与相爱的人分离则是人生莫大的无奈。这组诗对别离之情有生动的描绘和展现，充满了浓浓的感伤，感情基调低沉哀婉。其中，我们时常可看到这样哀伤的叹息："一弹再三叹，慷慨有余哀""音响一何悲！弦急知柱促""徙倚怀感伤，垂涕沾双扉"。可以说，这种低沉的情绪笼罩在整组诗中。也在一定程度上反映出汉末士人的普遍心态。

第二个层面，《古诗十九首》表现了文士认清人生真相后产生的幻灭感。正如诗中所写："人生忽如寄，寿无金石固。万岁更相送，圣贤莫能度。服食求神仙，多为药所误。"人生短暂，如白驹过隙，圣贤亦不能例外。洞察了修仙长生为虚妄后，他们愈发想要去把握和享受现实人生。他们要饮酒，于是说"不如饮美酒"；要宴饮高会，于是说"极宴娱心意"；要耳目之娱，于是说"弹筝奋逸响，新声妙入神"；要鲜衣良马，于是说"被服纨与素""何不策高足"……总之，就是"为乐当及时"。及时行乐是他们的一致选择。他们对生活充满了热望，对享受人生抱有极大热忱。这种幻灭感促使他们要求突破儒家名教的"清规戒律"。

第三个层面，文士在人生幻灭之后还要追寻朴素的人生。因为意识到了人生的有限和虚无，他们不再执着于遥不可及的不朽，转而去追求现实的人生。现实人生中安宁而平淡的日常，成了他们向往的心灵归宿。他们反复歌咏"愿为双鸿鹄，奋翅起高飞""愿得常巧笑，携手同车归""思为双飞燕，衔泥巢君屋"，举案齐眉、长相厮守成为了文士最朴素、真挚的愿望。正因为这样，他们对别离尤为敏感，也对其进行了反复书写："同心而离居，忧伤以终老""独宿累长夜，梦想见容辉""上言长相思，下言久别离"。离别的相思令人倍感痛苦，甚至催人衰老。从《古诗十九首》开始，中国文学中的离别书写始终充斥着悲伤的情绪，同时，离别也成为古代文学中的一个重要主题。

（摘编自《中国社会科学报》）

6. 对"五言之冠冕"，理解正确的一项是（　　）

A. 五言诗中最早的。

B. 五言诗中最多的。

C. 五言诗中最优秀的。

D. 五言诗中最具艺术性的。

7. 下列关于《古诗十九首》相关内容理解和分析，正确的一项是（　　）

A. 古代的论者多将诗歌主题与政治及士人出处相结合，后来朱自清、马茂元等学者纠正了这一错误看法。

B. 《古诗十九首》的主题朦胧模糊，一直都没有明确清晰的结论。

C. 本文作者认为《古诗十九首》文本内部具有共通性，对人生的感喟与思索应是其主题所在。

D. 低沉的情绪笼罩着整组诗歌，这在一定程度上反映出汉末士人在诗歌创作时伤感自身、壮志难酬的普遍心态。

8. 以下哪句诗与文士认清人生真相后产生的幻灭感无关？（　　）

    A. 人生忽如寄，寿无金石固。

    B. 弹筝奋逸响，新声妙入神。

    C. 极宴娱心意。

    D. 奋翅起高飞。

9. 下列对原文论证的相关分析，不正确的一项是（　　）

    A. 文章引用李善"以喻邪佞之毁忠良"之说，并不是为了证明《古诗十九首》的主题是诗歌作者的人生感悟。

    B. 文章采用了比喻论证的方法，用"飙尘""朝露""涧中石""金石"等作比，形象表达了对人生的认知和慨叹。

    C. 文章在论证过程中大量列举了《古诗十九首》中的诗句，论据翔实，使文章观点让人信服。

    D. 文章采用了总分式结构进行论述，将主要观点分成不同层面展开，论述脉络清晰。

10. 根据原文内容，下列说法不正确的一项是（　　）

    A. 汉代士人为了追求功名，经常要游学、仕宦，往往长达数年甚至更久，与相爱的人分离，甚至与亲人生死两隔，这是人生莫大的无奈。

    B. 汉末文人在认清人生真相后产生了幻灭感，促使他们不再坚守儒家名教的"清规戒律"，选择及时行乐，享受现实人生。

    C. 《古诗十九首》有大量书写离别的内容，离别导致相思，体现了安宁平淡的日常生活，是当时文士向往的心灵归宿。

    D. 《古诗十九首》反复书写离别，表达离恨之苦，文士们对离别的悲伤情绪的体抒发，对中国古代文学产生了持久深远的影响。

<div align="center">（三）</div>

    传统文化短视频，顾名思义即记录传统文化的网络短视频。截至2019年5月初，"抖音"平台上关于传统文化相关的短视频数量超过6500万条，累计播放量超过164亿次，传统文化话题成了"抖音"上最热的话题之一。目前，短视频客户端用户集中在24岁左右，而短视频传统文化传播的不断完善，也有利于在年轻人群体中推动传统文化的传承与发展。

    本文以"抖音"短视频平台为例，探讨传统文化短视频的受众心理。

    人类永无止境的好奇心催促着人们主动进入新环境、新领域，获得新知识。而"复古风"从生活服饰刮到了传统文化领域，从前与受众保持一定距离的"高冷"传统文化在互联网传播的快速性和跨时空性特质下，源源不断地传播到受众的面前。受众对于生动丰富、充满趣味的小众传统文化是新奇的，基于好奇与求新的心理，受众开始关注传统文化短视频，重新认识博大精深的传统文化。

    相对于"抖音"其他类型的信息，传统文化等知识的传播是以一种较为轻松的方式传递严肃的传统文化信息，受众在观看其他类型比如搞笑类短视频时可能会有浪费时间的隐忧，

但是观看知识类短视频能够增强受众技能知识、丰富精神世界，给受众带来一种满足感、充实感。而在此基础上，出于短视频的知识传播作用，短视频客户端不再只有休闲娱乐的作用，也是一款轻松学习、获得知识的工具。

法国著名社会学家让·鲍德里亚认为，在后现代的社会中，人们通常通过"消费"这个行为来表达自己，彰显地位或品位。当今时代，受众整体的文化水平以及生活格调都在提高，审美观念也与以往大不相同，不仅仅要求简单的好看、眼球刺激，还要有个性、流行等因素。"美而不同"是大多数人追求的新境界。传统文化一直作为高雅文化存在，在注入短视频这种新的传播方式后开始接地气，不同于传统信息传播的呆板与生硬，有个性的传统文化传播符合大众审美，更容易在受众中间扩散传播。

在传播活动中，从众是指个体（或群体）受到群体压力而改变态度或行为，使之和大多数人保持一致。在短视频领域，传统文化短视频在受众点赞、转发的二次传播中，引起了其他用户的跟随观看。而大多数情况下，由于"抖音"客户端无限推送的信息流模式，很多用户会选择点赞量多的视频进行观看。而平台功能的便利性使得人们在从众心理的指导下，由好奇的观看转化为参与视频拍摄。如共青团中央宣传部和"抖音"共同发起了"我要笑出'国粹'范"的话题活动，京剧演员王珮瑜为话题提供示范视频，引发了众多受众的模仿，截至目前此话题视频播放量超过 26 亿次。在从众心理的推动下，优秀的传统文化短视频获得了爆炸式的传播。

新媒体技术大大丰富了知识传播的渠道与载体，短视频突破了以图文传播为主的"两微"传播，丰富了现代人接收信息的方式。虽然短视频存在局限于"短小微"、所传达的内容不够深刻、视频制作者水平不高导致视频内容不够精致等问题，但目前，短视频依旧处于风口位置，传统文化传播着在充分利用短视频平台、发挥受众主导地位、推动更多优秀传统文化短视频产出的同时，也要寻求更为深入的传播方式。

（摘编自郝玉佩《短视频时代的传统文化传播与受众心理分析》）

11. 根据文章，以下哪一项不属于"抖音+传统文化传播"产生的效果？（　　）
    A. 传统文化与人们整体文化水平和生活格调的提高相契合，是一种高雅文化。
    B. 能够增强受众技能知识、丰富精神世界，给受众带来一种满足感、充实感。
    C. 这种传播符合大众审美，更容易在受众中间扩散。
    D. 短视频客户端除了休闲娱乐以外，也变成了一款轻松学习、获得知识的工具。

12. 下列关于原文内容的理解和分析正确的一项是（　　）
    A. 观看短视频能增强受众技能知识、丰富精神世界，给受众带来一种满足感、充实感。
    B. 在后现代的社会中，人们都想通过"消费"这个行为来表达自己，彰显地位或品味。
    C. 当今时代，"美而不同"的审美观念提高了受众整体的文化水平以及生活格调。
    D. 从众心理推动受众点赞、转发、观看、参与拍摄，使优秀传统文化短视频获得传播。

13. 下列选项中，哪一项不属于"从众心理"的表现（　　）

A. 传统文化短视频经过受众点赞、转发的二次传播后，其他用户也开始跟随观看。

B. 选择观看优秀传统文化类短视频，使得其获得爆炸式传播。

C. 在观看视频时，很多用户会选择点赞量多的视频进行观看。

D. 京剧演员王珮瑜为话题提供示范视频，引发了众多受众的模仿。

14. 下列对原文论证的相关分析，不正确的一项是（　　）

A. 文章从四个方面展开论证，主要从受众心理角度探讨短视频时代传统文化短视频备受追捧的原因。

B. 文章用共青团中央与京剧演员合作发起抖音话题并提供示范视频的实例证明从众心理对优秀传统文化传播的影响。

C. 作者运用了举例论证、道理论证、对比论证、引用论证、比喻论证的方法阐明自己的观点。

D. 最后一段总结全文，点明了短视频作为新媒体对于传播中国传统文化的作用，也提出了存在的问题，给文化传播者指出方向。

15. 根据原文内容，下列说法不正确的一项是（　　）

A. 短视频与传统文化相结合，能唤醒青年用户群体对传统文化的认知，对中国传统文化的传承与发展起到积极的作用。

B. 传统文化在互联网传播的快速性和跨时空性特质是受众开始关注传统文化短视频，重新认识博大精深的传统文化的最重要的因素。

C. 抖音短视频平台为中国传统文化传播提供了新的途径，传统文化也为其丰富了内容，注入了新的活力。

D. 随着智能技术不断发展，优秀传统文化短视频需要寻求不同领域的合作来实现更优秀的传播效果与更深入的传播方式。

（四）

病毒不同于其他所有生物，它不是由细胞组成的。一个细胞中的结构要进行生命活动：进食、产生能量、生长、对环境的改变作出反应。但这一切病毒都没有。当它呆在细胞外时，它实际上是很小的、无生命的、懒惰的颗粒。它进入细胞后，灾难就来了。

所有的病毒都由两部份组成：核酸构成的核和包住核的一层蛋白质，在有些情况下是脂肪或类脂的包膜。蛋白质外表或类脂包膜（如果有的话）使病毒依附上细胞膜——然后病毒进入细胞。实际上这并不容易。病毒外衣的表面必须刚好依附在细胞膜的"接收器"的位置。即使在理想的条件下，病毒与合适的细胞的几千次撞击中，也只有一次能使它们正确地连接。这就可以解释为什么通常的病毒只对特定的细胞起作用。狂犬病和感冒则是最明显的例外，它们能感染的范畴极广。

一旦病毒依附上细胞，它有几种方法穿过细胞膜进入细胞。在细胞膜上开一个小洞让它进去，有脂肪包膜的病毒能将它们的包膜与细胞膜融合而使它们进入细胞。

当病毒进入细胞，它就开始回复成它自己了。要理解它都干了些什么，我们必须更进一步了解它的核酸中心。

核酸存在于每个活的细胞和病毒中。它们有两种基本种类——DNA 和 RNA。DNA 构成基因组合。这意味着一个特定的 DNA 里储藏了构造和维持一种特定生物体的信息。DNA 是怎样决定生物的形式和功能的呢？它控制细胞和生物体制造蛋白质。不同的 DNA 产生不同的蛋白质，不同的蛋白质构成不同的生物体。

RNA 是干什么的呢？RNA 在细胞中的主要功能是充当信息的传递者。它将信息从 DNA（在所有细胞的细胞核中）传递到合成蛋白质的地方（在细胞核外）。DNA 像模板一样造出正确的 RNA，RNA 又同样制造出正确的蛋白质。

病毒要么有 DNA，要么有 RNA，但不会两样都有。在病毒中，RNA 不是信息的传递者而是基因物质。

病毒进入并强迫细胞制造出更多的病毒，必须有一些蛋白质和核酸的组合与细胞的类似。这种与正常分子成分惊人的相似性不是偶然的，它来自病毒对细胞或它的宿主长期的适应。实际上，自从地球上有生命以来，病毒和细胞就共同存在，共同进化。

有一种曾经很流行的说法，认为病毒是在细胞之前出现的。这种说法现在看来不太好。一种更可信的可能性是说，病毒是在很久以前从它们的细胞中逃出来的基因物质。

随着时间的变迁，这些"逃出来的基因"提高了独立的能力，能自我复制，在细胞中寄生——病毒。对它们的宿主细胞越适应的病毒，危害性越小。这就是病毒进化的形式。大部分的病毒感染完全没有危害，但那些进化得不完美的病毒引起的危害和痛苦则是巨大的。

病毒有修复 4000 种人类混乱基因的特殊能力。把准确的基因附在经过处理没有感染性的病毒身上，使它进入有缺陷的细胞，这是修复这些细胞最好的方法。这种基因疗法还可能用来修复癌细胞的 DNA。

（选自《在岩石上漂浮》，有删改）

16．下列关于"病毒"的表述，正确的一项是（　）

A．病毒不是由细胞组成的，它实际上是很小的、无生命的、懒惰的颗粒，没有一系列的生命活动。

B．所有的病毒都由核酸构成的核和包住核的一层类脂包膜组成。这层外衣使病毒依附上细胞膜——然后病毒进入细胞。

C．即使在理想的条件下，病毒与合适的细胞在几千次撞击中，也只有一次能使它们正确地连接。

D．病毒和细胞共同存在，共同进化。病毒对它们的宿主细胞越适应，危害性就越小；而那些进化得不完美的病毒引起的危害和痛苦则是巨大的。

17．下列关于细胞 DNA 和 RNA 的表述中，不正确的一项是（　）

A．DNA 构成基因组合，一个特定的 DNA 里储藏了构造和维持一种特定生物体的信息。

B．DNA 决定生物的形式和功能，为细胞和生物体制造蛋白质。

C. RNA 充当信息的传递者。它将信息从 DNA 传递到合成蛋白质的地方。

D. DNA 制造 RNA，RNA 制造蛋白质。

18. 对"逃出来的基因"这一说法理解正确的一项是（　　）

A. 病毒能自我复制，在细胞中寄生。

B. 大部分的病毒感染完全没有危害。

C. 病毒作为一种基因物质，是从原来的细胞中分离出来的。

D. 病毒有修复 4000 种人类混乱基因的特殊能力。

19. 下列对文章内容的理解，不恰当的一项是（　　）

A. 病毒在依附上了细胞后，穿过细胞膜进入细胞的方法是将包膜与细胞膜融合而使它们进入细胞。

B. RNA 在细胞中的主要功能是充当信息的传递者；而在病毒中，RNA 不是住处的传递者，是基因物质。

C. DNA 控制细胞和生物体制造蛋白质，不同的 DNA 产生不同的蛋白质，不同的蛋白质构成不同的生物体，DNA 就是这样决定生物的形式和功能的。

D. 病毒强迫细胞制造更多病毒，因为对细胞或它的宿主有长期的适应，所以必须有一些蛋白质和核酸的组合与细胞的类似。

20. 从全文看，下列表述符合作者观点的一项是（　　）

A. 病毒是在很久以前从它们的细胞中逃出来的基因物质，"病毒是在细胞之前出现的"这一说法是错误的。

B. 狂犬病和感冒病毒能感染的范围极广，免疫系统对它们无能为力，它们对所有的细胞都起感染作用。

C. 病毒作为在很久以前从它们的细胞中逃出来的基因物质，一旦逃出后就提高了独立的能力，能自我复制。

D. 把准确的基因附在经过处理没有感染性的病毒身上，使它进入有缺陷的细胞的基因疗法，可能用来修复癌细胞的 DNA。

二、作文

（共 1 题，40 分）

北京卫视节目《传承者》中，几十个来自山西稷山的农村孩子表演一出高台花鼓。舞蹈难度较高，但是这些孩子在表演过程中整齐划一，赢得观众喝彩。在评委点评环节，有几名青年评论员认为，这个节目是很多人一起表演，面孔单一，没有凸显个人英雄。嘉宾陈道明反驳道："每一张脸怎么会是一样的呢？是你没看见他们每一张脸的样子，这世界没有那么多英雄，大部分人一辈子可能要甘于平庸、甘于寂寞，但是请不要打击他们的努力。"

那么，你是如何看待"英雄"与"平庸"的呢？

请根据以上材料，写一篇不少于 400 字的作文。

三、口头表达

（共 1 题，20 分）

近日，某大学将每月在食堂吃饭超过 60 顿，一个月总消费不足 420 元的学生列为资助对象，直接把补贴款打进饭卡。这件事在学生中引起很大反响。

学生甲："这既帮助了贫困学生又维护了他的个人尊严，好！"

学生乙："这种做法初衷是好的，但不够公开透明，也可能会出现'暗箱操作'。"

学生丙："这样悄悄地进行补助，对个人固然有好处，但对倡导帮贫扶困的风气作用有限，不如高调慈善的影响力大。"

……

对于这个问题，你有什么看法？

请在 2 分钟的准备时间后进行一段至少 3 分钟的发言。

参考答案

1-5：B B C A D

6-10：C C D B C

11-15：A D B C B

16-20：D B C A D

写作评分标准（40 分）：

一档（40-31 分），符合题意、中心突出、内容充实、表达流畅、没有语病及错别字、卷面格式规范整洁。

二档（30-21 分），符合题意、中心较为突出、内容较为充实、表达较为流畅、语病及错别字较少、卷面格式基本规范整洁。

三档（20-11 分），基本符合题意、中心基本明确、内容单薄、表达存在一定问题、语病及错别字较多、卷面及格式规范性存在问题，长度不足 400 字。

四档（10-1 分），偏离题意、中心不明确、内容不当、存在严重的语病及大量错别字、文章难以理解、卷面及格式规范性存在严重问题，长度严重低于 400 字。

注：空白卷为 0 分。

口头表达评分标准（20 分）：

一档（20-16 分），扣题，观点明确、论述逻辑清晰、表达流利、没有语法结构错误。

二档（15-11 分），扣题，观点较为明确、论述逻辑较为清晰、表达较为流利、有少量语法结构错误。

三档（10-6 分），勉强扣题，能就个人观点展开论述但逻辑条理较差，有较

多语法结构错误，表述时长略短于 3 分钟。

四档（5-1 分），跑题，个人观点不明确，论述逻辑混乱，有很多且严重语法结构错误，表述时长少于 2 分钟。

注：不作答者 0 分。

上海交通大学国际本科生招生考试语文科II考试试卷

（听力材料）

第1到5题，请选出与所听内容一致的一项。

1.赫哲族是一个历史悠久的民族，主要分布在黑龙江省。食物以鱼为主，有一套烹调鱼类菜肴的独特技艺。捕鱼和狩猎是赫哲人衣食的主要来源。赫哲族人喜爱吃鱼，尤其喜爱吃生鱼。

2.每一种文明的发展都是与其他文明碰撞、交流融合的过程，固步自封不可能带来文明的进步，只会导致文明的衰落。

3.根据世界卫生组织推荐，健康成年人每天盐的摄入量不宜超过 6 克。而北京人每天食盐平均摄入量为 13 克，超过标准 1 倍多。为使市民树立科学用盐意识，北京市开展了"限盐行动"。

4.管理者平时最好用简单的语言、易懂的言辞来传达讯息，而且对于说话的对象和时机要有所掌握，有时，过分的修饰反而达不到想要完成的目的。

5.代沟，简单来说就是不同年龄层次的人因思想观念上的差距造成的心理距离。代沟不仅存在于上一代与下一代之间，而且在年龄相隔十年、八年的人们之间，甚至在学校的高年级与低年级学生之间，都会有令人惊叹的明显差异。

第 6-10 题，请根据下面的采访回答问题，选出正确的选项。

女：大家好！欢迎来到《身边》访谈室。现在坐在我身边的是具有"中国主题公园之父"称号的马志民先生。您好，马老！

男：你好！

女：马老，首先请您给大家讲解一下：什么是"主题公园"？

男：主题公园是一种人造旅游资源，它着重于特别的构想，围绕着一个或几个主题创造一系列有特别的环境和气氛的项目以吸引游客。比如美国的迪士尼公园，将迪士尼电影场景和动画技巧结合机械设备，将主题贯穿于各个游戏项目。由于能够让游客有前所未有的体验，结果风靡了美国，现在传到世界各地。

女：请您谈谈我国主题公园的建设和发展。

男：我国主题公园起步于 80 年代末、90 年代初，目前影响较大的项目有"欢乐谷""方特""嘉年华""锦绣中华"等等。中国很多城市也兴建了其他大大小小的主题公园，但是大部分都不成功。

女：是什么导致的这种状况呢？请谈谈您的见解。

男：我认为有四个方面的原因。首先，主要是决策者的盲目性和随意性。有些决策者没有对地点、交通状况、资源、市场容量等与主题公园发展有关的问题加以深入分析，看到一些主题公园客流源源不断，回去就动工建设，结果开了一年就倒闭了。

女：是盲目性和随意性造成了重大失误。

男：对。其次，主题公园投资以外资和民营资本为主，开发项目受到资金、人才和资源的制约；再次是主题的重复和雷同，如在相距不远的地方，你可能会发现有五六个相似的唐城、游乐园；最后，追求短期效益，急功近利，公园的质量上不去，景观受到破坏，自然只能以关门告终。

女：您认为主题公园怎样经营才能在中国成功呢？

男：主题公园成功的要素有三个：品质、特色和创新。

女：主题公园在中国的未来前景如何呢？

男：我国主题公园的发展应该有三大趋势：一是以中国的历史文化为主题，这是我们的优势和强项，也是外国人最喜欢的；二是休闲度假型的主题公园；三是集知识性、趣味性和参与性为一体，表现科技的主题公园将大放异彩。

6. 主题公园是什么？

7. 一些主题公园经营失败的主要原因是什么？

8. 在中国，主题公园的投资有哪些形式？

9. 男的认为，主题公园成功的要素是哪些？

10. 主题公园发展的三大趋势是什么？

第 11 到 15 题，请根据听到的短文内容，选出正确答案。

在低迷的经济背景下，零售业销售业绩十分惨淡，许多商家不得不想出各种"奇招"吸引顾客。某面包公司不久前推出了一家"慷慨"到由顾客决定价格的面包店。与其他面包店相同，顾客在这家位于密歇根州迪尔伯恩市的面包店里能购买到三明治、热汤和沙拉。但不同的是，这里的所有商品都没有明确标价，顾客愿意付多少钱都可以。收银员在结账时会告知顾客所购买商品的"建议价格"，顾客可以根据自己的情况和意愿随意支付费用。

该面包公司区域经理介绍说：他们采用的是一种全新的经营理念，顾客可以根据自己的意愿多付、少付或者不付餐费。无力支付餐费的顾客也可以选择在面包店的咖啡厅做一小时义工来"换取"自己的食物，而不是来自救济。"据统计，60%的顾客会按照'建议价格'付款，20%的顾客会多付一些，其余的顾客会少付一些。"经理说，"所以我们店的生意一直很兴旺，并没有像外人想象的那样亏损。我们的顾客都是值得信赖的，很少有人会故意占便宜或者作弊。我们会将一定数额的盈利捐赠给一个专门帮助'问题少年'的公益

项目，让他们学习一些职业技能，以便更早地回归社会。"

　　该公司表示，如果经营情况良好，他们还会考虑在其他地区推广建立新的门店。

11.这家面包店的做法是什么？

12.这家面包店鼓励钱不够的人怎么做？

13.采用这种方式有什么效果？

14.有多少顾客支付的钱少于建议价格？

15.关于这家公司，以下哪个说法错误？

上海交通大学国际本科生招生考试语文科II考试试卷

（样卷）

一、听力理解

（共 15 题，每小题 2 分）

第 1-5 题：请选出与所听内容一致的一项。

1. A 赫哲族分布在南方
   B 赫哲人擅长烹调鱼
   C 赫哲人几乎不打猎
   D 赫哲人喜欢吃熟鱼

2. A 文明总是孤立发展的
   B 要大力促进国际贸易
   C 文明之间要互相学习
   D 文明进步是长期过程

3. A 盐的摄入量有标准
   B 北京人不喜欢吃盐
   C 盐会损害人的健康
   D 政府鼓励市民吃盐

4. A 管理者平时说话要清晰简洁
   B 只有管理者要考虑说话对象
   C 管理者只需要关注说话内容
   D 管理者需要比较华丽的表达

5. A 代沟的产生与年龄有关
   B 只有两代人之间才有代沟
   C 代沟指同龄人之间的距离
   C 高低年级之间没有代沟

第 6-10 题：请听一段采访，选出所听到问题的正确答案。

6. A 游乐设施
   B 电影场景
   C 自然景观
   D 人造旅游资源

7. A 决策盲目随意
   B 公园之间竞争
   C 吸引力不足
   D 缺乏创新精神

8. A 国有资本
   B 国有和外资
   C 外资和民营资本
   D 国有和民营资本

9. A 位置、规模、投资
   B 品质、特色、创新
   C 市场、交通、质量
   D 资本、特色竞争力

10. A 文化、休闲、科技

   B 创新、历史、知识

   C 市场、口碑、资本

   D 知识性、参与性、趣味性

第 11-15 题：请听一篇短文，选出所听到问题的正确答案。

11. A 降低商品的价格

   B 让顾客自愿支付

   C 所有商品都免费

   D 增加产品的种类

12. A 接受店里的救济

   B 通过工作换取食物

   C 去购买更便宜的东西

   D 使用一些优惠券

13. A 生意会有亏损

   B 生意非常兴旺

   C 很多人来占便宜

   D 很多人会多付钱

14. A 20%

   B 40%

   C 60%

   D 80%

15. A 很有营销策略

   B 很有社会责任感

   C 目前为止是成功的

   D 已经有了很多连锁店

二、阅读理解

（共 30 题，每小题 1 分）

第 16-23 题：选词填空。

16. 狒狒们打扮彼此以保持和巩固"社会关系"。但人类进化得更加_____，将流言当做"社会关系增强剂"。研究发现，人们_____流言的目的是拉帮结派并以此提高自尊。很多情况下，流言的真正目的不是_____真相，而是牺牲第三方利益，从而制造出一种"团结假象"。
    A 完整　流传　透露　　　B 完备　散布　败露
    C 完善　散播　揭露　　　D 完满　传播　泄露

17. 打呼噜是一种_____存在的睡眠现象，大多数人司空见惯而不以为然，还有人把打呼噜看成是睡得香的_____。其实这是一个正负颠倒的观念。打呼噜是健康的大敌，由于打呼噜使呼吸断断续续，_____暂停，会对人体健康产生许多危害。
    A 普及　表达　来回　　　B 普遍　表现　反复
    C 普通　现象　重复　　　D 通常　表示　反正

18. 第一天上班的时候，我会毫不犹豫地选择穿西装、打领带。服装其实是一个_____，首先说明你把到公司来上班当做很_____的一件事；其次，表明你是一个很重_____的人；最后，西装使人更精神，让你更容易被注意到。
    A 记号　慎重　节日　　　B 信息　重心　仪式
    C 暗号　庄重　威仪　　　D 信号　郑重　礼仪

19. 京剧的脸谱固然来源于舞台，但大家在一些高楼大厦的宣传画、商品的包装、各种瓷器上以及人们穿的衣服上都能看到风格迥异的脸谱_____，这远远超出了舞台应用的_____，足见脸谱艺术在人们心目中所占据的_____，说明脸谱具有很强的生命力。
    A 形象　范围　地位　　　B 形状　周围　位置
    C 图形　四周　职位　　　D 形式　区域　身份

20. 是不是有人不做梦呢？绝大部分科学家相信所有人都会做梦。如果有人认为自己没有做梦或者很少做梦，那是因为他们醒来后将梦中的_____全部忘记了。有研究_____，无梦睡眠不仅质量不好，而且还是大脑受到_____的一种征兆。
    A 情节　表明　损害　　　B 情况　显示　迫害
    C 情景　认为　危害　　　D 情形　觉得　破坏

21. 豆浆是中国人喜爱的一种饮品，又是一种_____的营养食品。豆浆是将大豆用水泡后磨碎、过滤、煮沸而成。豆浆营养非常_____，且易于消化吸收。豆浆不愧有"植物奶"的_____。

A 老少皆宜　丰富　美誉　　　B 家喻户晓　丰满　荣誉
C 爱不释手　富有　光荣　　　D 称心如意　复杂　美名

22. 清明节是中国民间重要的传统节日，是祭祖和扫墓的日子。清明节又叫踏青节，_____
　　阳历来说，它是在每年的 4 月 4 日至 6 日之间，正是春光明媚、草木吐绿的_____，也
　　正是人们春游的好时候，所以古人有清明踏青并开展一_____体育活动的_____。
A 照　时候　种类　风气　　　B 依　时机　类别　习惯
C 靠　季节　体系　民俗　　　D 按　时节　系列　习俗

23. "驴友"一般指的是徒步或骑自行车出去旅游的爱好者。这个词最初_____于网络。
　　"驴友"特指以以上方式出行的"爱好者"，而非旅游_____。"驴友"也是这些爱好者
　　自称及尊称对方的一个名词，因为驴子能驮能背，_____，所以，也常被"驴友"们作
　　为自豪的_____之一。
A 来源　本身　吃苦耐劳　资本　　　B 由来　自身　坚持不懈　资金
C 出处　自己　任劳任怨　本钱　　　D 源泉　原本　默默无闻　谈资

第 24-33 题：选句填空，每篇文章有一个选项是多余的。

24-28

当鲸鱼在海洋中死去，（24）＿＿＿＿＿＿＿。生物学家赋予这个过程一个名字——鲸落。

鲸鱼的尸体可以供养整套生命系统。1998 年，美国夏威夷大学的研究人员发现，在北太平洋深海中，至少有 43 个物种的 12490 个生物体是依靠鲸落生存的。（25）＿＿＿＿＿＿＿。

在地表之上，万物生长依靠太阳。（26）＿＿＿＿＿＿＿，在 200 米以下也几乎是漆黑一片。没有阳光，驱动生物界运行的最主要的能量来源断绝，但是并非没有其他途径。深海海底的生物依靠化能合成和海面输送来的物质生存，热泉口是它们的城市，（27）＿＿＿＿＿＿＿，从海面缓慢飘下来的食物碎屑（"海洋雪"）对它们来说是天降甘霖，而死去的鲸鱼落下的巨大身躯，是它们的绿洲。

在中文里，鲸落的"落"字既有鲸鱼尸体从海中缓缓"下落"的意思，（28）＿＿＿＿＿＿＿。

A 鲸落这个词从英文"Whale Fall"翻译过来的

B 洋流是它们的道路

C 科学家还在鲸落里发现了 16 个新物种

D 也有落到海底形成生物"群落"的意思

E 它的尸体会最终沉入海底

F 但哪怕是最清澈的海水

29-33.

经过调查，很多人都喜欢在浴室里一边洗澡一边唱歌，（29）_____。这和声音的反射是有关的。

人们发声主要是通过腔体，比如口腔、鼻腔，经过训练的人通过控制腔体的形状和大小，即便是在空旷的场地，也能利用自己的腔体让声音显得浑厚好听。（30）_____，唱歌的声音会显得干涩、扁平。

浴室就为绝大多数这样没有受过训练的人模拟了一个绝好的外部"腔体"。我们口中发出的声音，（31）_____。我们口中发出的声音，实际是经过了数次反射、衰减之后才回到耳朵当中。一般来讲，绝大多数的浴室都是瓷砖的地板和墙壁，不太容易让声音衰减，也就是说，声音发出之后，会从多个角度反射回自己的耳朵里。（32）_____，反射的声音尽管有先有后，但是间隔却很小，造成了一种其实这些都是一个声音的错觉。所以，（33）_____，我们听到的就是自己的声音共振加强了许多倍，声音洪亮、立体又饱满。原本应该是由身体内的腔体进行的活动，被这个小小的浴室（外部腔体）替代了。

A 而绝大多数没有经过专业训练的人

B 在浴室里唱歌的声音感觉尤其好听

C 又因为浴室面积小

D 洗澡的热水会把人的肌肉放松

E 当这些声音一并进入耳朵之后

F 和我们实际听到的声音其实并不一致

第 34 - 45 题：请阅读短文，选出问题的正确答案。

34-37.

　　很长一段时间以来，人们总是认为爱冒险是有性别差异的，是天生的。与女性相比，男性更倾向于追求比较刺激的事物，更喜爱挑战冒险运动。徒手攀岩的探险家大多都是男性；F1 赛车历史上仅有 5 位正式女车手等。在青少年阶段，男性意外伤害风险是女性的 3.1 倍；中青年阶段，男性意外伤害风险是女性的 2.38 倍。这在一定程度上反映了男性更倾向于冒险，面临的风险是比女性高的。涉及到风险和获益时，大量的研究数据也表明，男性的冒险倾向依旧高于女性。

　　美国心理学家罗伊·鲍迈斯特从进化心理学的角度解释，认为人类创造的文化，将男人作为消耗品，鼓励其激烈竞争、优胜劣汰，努力超越他人获得更多资源，得以生存和延续。而在繁衍上女性不需要去冒险，不用进行激烈的竞争，她们最关心的是怀孕以及孩子的照料，所以她们需要的是提升吸引力，获得更优秀的配偶来给她们提供舒适的生存环境。

　　英国心理学家也在研究中发现男性与女性的冒险倾向在数据上存在相当大的差异，他猜测这种区别由进化形成，早期的男性要负责打猎，因此必须冒险，女性则要更谨慎地将家庭成员维系在一起。这种性别差异逐渐被写在基因里，在进化过程中达到一定平衡。

　　然而，最近美国休斯顿大学和中国复旦大学的博士提出了另外一种解释：男女冒险精神的差异更多的是后天被性别文化影响的。进化心理学或者基因决定论不能完全解释男女在冒险行为上的性别差异。在主流的父系社会中，男性普遍比女性更爱冒险。但女性并不是先天地厌恶风险，在母系社会中，女性反而比男性更倾向于冒险。因此，个体社会化的历程对其风险偏好有着极大的影响，家庭环境、社会环境都起着决定性的作用。同时，在这个研究中他们也发现，如果将本来生活在母系社会中的女性个体放在父系社会中，她们对风险的厌恶程度便会增加。这表明风险偏好的性别差异在早期社会化的过程中具有较强的可塑性。

34. 第一段谈到 F1 赛车的目的是什么？
A 证明男性更容易受伤
B 证明男性更喜欢冒险
C 说明男性更擅长开车
D 反驳传统的性别偏见

35. 关于罗伊·鲍迈斯特的解释，以下哪个说法正确？
A 女性是一种消耗品
B 男性需要提高吸引力
C 两性差异与进化有关
D 女性要在繁衍上冒险

36. 关于最后一段，下列哪个说法**错误**？

A 女性不是天生就讨厌冒险

B 两性差异与进化和基因无关

C 后天因素影响了两性差异

D 风险偏好是各种因素共同的结果

37. 你最有可能在哪里看到这篇文章？

A 科普杂志

B 言情网站

C 地理教材

D 学术报告

38-41.

那个冬天的一个周末，艾伦和母亲遇见了狼——这种只有在童话故事里她才听到过的动物。在那次惊心动魄的战争后，她对母亲的看法全然改写。

那年艾伦 8 岁，同母亲住在阿拉斯加的一个叫伊莎诺丁的丘陵地区。母亲长着一副高大结实的身板和一双像男人一样打着厚茧的手，除了在这双手抚着她入睡时，艾伦很难认同母亲是一个纯粹的女人。

那个周末下午放学后，艾伦因玩耍而忘了时间，直到母亲找遍了她所有能去的地方，最后在离学校不远的杂草垛里，把艾伦同其他几个年龄稍大的小家伙揪了出来，这时艾伦才发现，原来天色已晚了。

伴着月光，艾伦牵着母亲的手走过一处处低矮的灌木丛，正当她们离家越来越近，已经可以看到家里的灯光的时候，一只母狼领着它的幼崽出现在她们眼前。

母亲拔出了砍刀，高高举过头顶。终于，母亲首先向母狼和狼崽发动了袭击，母狼躲过了母亲的砍刀，而狼崽却被孔武有力的母亲牢牢抓住了头部，难以动弹。正当母亲举刀准备抹向狼崽的脖子时，最可怕的一幕发生了。

母狼猛地向艾伦扑了过来，小艾伦惊恐地大叫一声倒在地上，紧闭双眼，头脑里一片空白。那时艾伦可以感到母狼有力的前爪按在她的胸上和肩上，狼口喷出热热的腥味。

突然，奇迹发生了，母狼的嘴猛地离开了艾伦的颈窝，它没有向艾伦下口。艾伦慢慢睁开双眼，看到母狼用喷着绿火的眼睛紧盯着母亲和狼崽，母亲也用一种绝望的眼神盯着她和母狼。母亲手中的砍刀紧贴着狼崽的后颈，在砍刀露出的部分，有一条像墨线一样细细的东西缓慢流动着。那是狼崽的血！这是一场动物与人的母性的较量，无论谁先动手，迎来的都将是失子的惨烈代价。

对峙足足持续了 5 分钟，终于母狼放开了艾伦，原先高耸着的狼毛趴了下来，它一边大口大口喘气，一边用一种奇特的眼光看着母亲，母亲慢慢地撤了刀，把狼崽向远处一抛，马上把艾伦揽入怀中。母狼没有再次进攻，它长嚎一声，带着狼崽消失在丛林中。

母亲背着艾伦飞快地朝家里跑去，刚入家门，她便脚一软摔倒在地昏了过去，她那打着老茧的手还死死地搂着背上的艾伦。

38. 艾伦的母亲有什么特点？
A 纤细柔弱
B 高大壮实
C 温柔似水
D 粗野蛮横

39. 下列说法正确的是哪一项？
A 母亲先抓住了小狼
B 母狼先抓住了艾伦
C 艾伦主动挣脱了母狼
D 小狼主动挣脱了艾伦

40. 为什么最后艾伦和小狼都没有受伤？
A 因为母亲喜欢小狼
B 因为艾伦力气非常大
C 因为母亲不舍得伤害动物
D 因为母亲们都爱自己的孩子

41. 下面哪一个是最合适的题目？
A 母爱无界限
B 人与大自然
C 狼的习性
D 爱护动物，人人有责

42-45.

悬空寺位于北岳恒山脚下的金龙峡，距大同市约 80 公里，据说是北魏时一位叫了然的和尚所建，距今已有 1400 多年的历史。

这里山势陡峻，两边是直立百米、如同斧劈刀削一般的悬崖，悬空寺就建在这悬崖上，或者说像是粘贴在悬崖上似的，给人一种可望而不可即的感觉。抬头望上去，但见层层叠叠的殿阁，只有十数根像筷子似的木柱子把它撑住。俗语说："平地起高楼。"可是，悬空寺却反其道而行之。虽然悬空寺给人的第一个印象是一栋危楼，但出于好奇和探险的冲动，谁都愿意鼓起勇气踏进寺门。

踏上那连接殿宇的走廊，人们会不约而同地提起脚跟，屏住呼吸，小心翼翼地踩在木板上，好像走在刚结了冰的河面上，生怕脚重，寺塌下来。

侧身探头向外仰望，但见凌空的走廊只有数条立木和横木支撑着。这些横木又叫做"铁扁担"，是用当地的特产铁杉木加工成为方形的木梁，深深插进岩石里去的。据说，木梁用桐油浸过，所以不怕被白蚁咬，还有防腐作用。

其实，悬空寺之所以能够悬空，除了借助"铁扁担"之力外，柱子也立下了汗马功劳。这些柱子，每个落点都经过精心计算，以保证能把整座悬空寺支撑起来。据说，有的木柱起承重作用；有的是用来平衡楼阁的高低；有的要有一定重量加在上面，才能够发挥它的支撑作用，如果空无一物，它就无所借力而身不由己了。

悬空寺在建寺时因地制宜，充分利用峭壁的自然状态来布置和建造寺庙的各部分建筑，设计非常精巧。比如，寺中两座最大的建筑物之一的三官殿，就应用了向岩壁要空间的道理，殿前面是木制的房子，后面则在岩壁上挖了很多石窟，使殿堂变得非常开阔。悬空寺的其它殿堂大都小巧玲珑，进深都较小，殿内的塑像形体也相对缩小。

42. 为什么悬空寺给人的第一印象是"危楼"？（第二段）
A 因为很多结构被损坏了
B 因为它看起来很危险
C 因为它是"平地起高楼"
D 因为悬空寺很不结实

43. 关于"铁扁担"下列说法正确的是
A 是由铁棒制成的
B 用来支撑悬空寺
C 容易被白蚁叮咬
D 使用的数量很多

44. 下列哪个**不是**悬空寺能悬空的原因？
A 借助"铁扁担"的力量
B 使用木柱子支撑
C 把悬崖削成平地
D 充分发挥人的智慧

45. 关于悬空寺的特点，下列说法**错误**的是？
A 结构别致
B 设计精巧
C 因地制宜
D 中西结合

三、作文

（共 1 题，20 分）

随着科技的发展，机器翻译在翻译领域发挥着越来越重要的作用。在你看来，未来机器翻译能否取代人工翻译？为什么？

请写一篇不少于 300 字的文章，谈谈你对这个问题的思考。

四、口语表达

（共 1 题，20 分）

你有什么爱好？你在空闲的时候喜欢做什么？请简单介绍一下。

你需要完成一段不少于 2 分钟的口语表达录音，录音前你将有 3 分钟的准备时间。

参考答案

1-5　B C A A A

6-10　D A C B A

11-15　B B B A D

16-23　C B D A A A D A

24-33　E C F B D B A F C E

34-37　B C B A

38-41　B A D A

42-45　B B C D

参考答案

上海交通大学国际本科生招生考试物理科考试大纲

2021 年 11 月

一、考试目的

上海交通大学国际本科生招生考试物理科考试（以下简称"本考试"）是为上海交通大学国际本科生招生而进行的选拔考试，旨在全面测试考生的物理科学素质和综合运用所学知识分析和解决问题的能力，考查考生是否具备进一步学习所必需的物理知识与素养。

物理学科考试注重测量学生的自主学习能力，重视理论联系实际，关注与物理学有关的科学、技术和社会经济的协调发展。

二、考核的技能

本考试旨在考查考生在物理学科方面的基本知识和科学素养，包括：1、考查考生对高中阶段物理基础知识和基本技能掌握的情况；2、考查考生运用物理学基本原理和方法解决简单实际物理问题的能力；3、考查考生运用物理学基本原理和方法进行分析、推理并得出结论等探究能力。详细说明如下：

1.基础知识和基本技能

（1）认识物理现象、概念和规律，知道其形成和发展过程。
（2）理解基本的物理概念、规律和公式，并对具体问题做出解释与说明。
（3）通过简单的数学运算对具体问题做出解释与说明。

2.基本原理和方法

（1）应用物理原理进行分析、归纳、推理。
（2）运用科学分析方法（对称性、控制变量、数学方法等）处理问题。
（3）利用数据与图像分析、处理问题。

3.基本科学素养

（1）针对实际问题，建立物理模型。
（2）综合运用物质、运动和能量的观点，分析、处理问题
（3）阅读理解简单的新知识并用以分析、处理相关问题。
（4）针对简单问题进行探究。

三、试卷结构

考试时长为 60 分钟，卷面满分为 100 分。考查内容、测试题型、题目数量和所占分值比例等如下表所示。

主要考查内容及题目分配

考查内容	测试题型	题目数量	分值比重（%）	时间（分钟）
力学	选择题	10	33.3	
振动与波	选择题	3	10.0	
热学	选择题	5	16.6	60
电磁学	选择题	7	23.4	
光学与原子物理	选择题	5	16.7	
总计			**100**	

四、考试形式

本考试采用计算机化考试形式，所有题型在计算机屏幕上呈现。试题材料采用文字、图画、图表、照片等形式呈现。

五、评分标准和方法

本考试采用单选客观题的形式进行考核。选择正确得分，选择错误不得分。

附录 1：应知应会知识点

内容主题	知识内容	说明
力学	参考系、质点、物理模型	
	路程、位移	
	平均速度、瞬时速度	
	平均加速度、瞬时加速度	
	匀加速直线运动	
	自由落体运动	
	抛体运动	
	相对运动	
	相互作用、力	
	牛顿第一定律	
	牛顿第二定律	计算只限于单个物体，且质量和合外力都不发生变化的情况。
	牛顿第三定律	
	国际单位制、单位转换	
	圆周运动	
	线速度、角速度、周期	
	万有引力定律	可以做有关天体运动的计算
	卫星与失重	
	开普勒定律	
	力的功、功率	
	动能	
	势能	
	功和能量变化的关系	要求对简单问题进行定量计算
	机械能守恒定律	
	动量定理	
	动量守恒定律	
	机械能守恒定律动和量守恒定律综合运用	简单问题的应用
振动与	振动、简谐振动	
	简谐振动的能量	
	单摆	

波动	阻尼振动、受迫振动	
	机械波的形成	
	横波、横波图像，简谐波	
	简谐波的能量	
	波的叠加	
	驻波	
	多普勒效应	
热学	分子、阿伏伽德罗常数	
	气体的状态参量	
	理想气体实验定律	只涉及质量不变的单一气体
	热力学温标	
	分子动理论	
	理想气体的内能	
	热力学第一定律及应用	对简单过程的应用
	热力学第二定律及应用	
电磁学	电荷量、基元电荷	
	绝缘体与导体	
	库仑定律	
	静电场	
	电场强度、电场线	
	电势与电势能	
	电势与电场强度的关系	
	电场对电荷的作用	
	静电场中的导体	
	电流	
	欧姆定律	
	直流电路	只要求简单电路
	电功、电功率	
	电容器	
	电场能量	
	电流与磁场	
	磁感应强度、磁通量	
	磁场对电流的作用	
	磁场对运动电荷的作用	洛伦兹力
	电磁感应定律	
	交流电路	

	变压器	
	电磁场与电磁波	
几何光学	几何光线	可以做简单的计算
	反射定律、折射定律	
	球面镜	
	凹面镜	
	薄透镜	
物质微观结构	电子与原子	
	原子光谱	
	玻尔原子模型	
	原子的核式结构	
	物质的放射性	
	原子核的组成	
	重核的裂变、链式反应	

上海交通大学国际本科生招生考试物理科考试试卷

（样卷）

SJTU International Undergraduate Entrance Examination

(Physics sample exam papers)

一、第一部分（共 20 题，每小题 3 分。每小题只有一个正确选项）

I. Single Choice problems（3 points each）

1. 哪个单位可以用基本单位表示为 kgm^2s^{-2}？

   Which unit can be expressed in base units as kgm^2s^{-2}?

   A) 焦耳 joule

   B) 牛顿 newton

   C) 帕斯卡 pascal

   D) 瓦特 watt

2. 天然放射性元素衰变时放出的β射线是

   What are the particles emitted by the spontaneous radioactive decay of an atomic nucleus during the process of beta decay?

   A) α粒子流

      Alpha particles

   B) 质子流

      Positrons

   C) 中子流

      Neutrons

   D) 电子流

      Electrons

3. 如图，时钟正常工作，比较时针、分针和秒针转动的角速度和周期，秒针的

   A clock works normally, Among the angular velocities and periods of hour, minute and second hands,

   A) 角速度最大，周期最大

      Both the angular velocity and period of second hand are the largest;

   B) 角速度最大，周期最小

      The angular velocity of second hand is the largest, while its period is the smallest;

   C) 角速度最小，周期最大

      The angular velocity of second hand is the smallest, while its period is the largest;

   D) 角速度最小，周期最小

      Both the angular velocity and period of second hand are the smallest.

4. 如图，质量为 m 的物体沿倾角为 α 的固定光滑斜面下滑，则物体对斜面压力的大小为

A frictionless pane is inclined at an angle a to the horizontal, as shown. A block of mass m is placed on the plane and allowed to slide down. The magnitude of normal force exerted on the block by the plane is
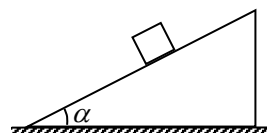
A) $mg\sin\alpha$

B) $mg\cos\alpha$

C) $mg\tan\alpha$

D) $mg\cot\alpha$

5. 甲、乙两物体沿同一直线运动，右图为他们运动的 s–t 图，则

Two masses, a and b move along a straight line. Their dependencies of displacements on time are shown in figure. Which of the following statements is true?
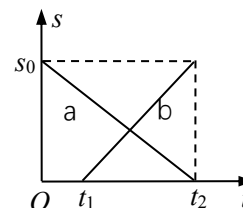
A) 甲、乙在 t_2 时刻相遇

They meet at time t_2;

B) 甲、乙在 t_1 时刻相距 s_0

The distance between a and b at time t_1 is s_0;

C) 甲的速率小于乙的速率

The magnitude of velocity of mass a is less than that of mass b;

D) 甲做减速运动、乙做加速运动

Mass a slows down while mass b speeds up.

6. 哪个图是一个负的点电荷的电场线？

Which diagram shows the pattern of the electric fied lines due to a negative point charge?
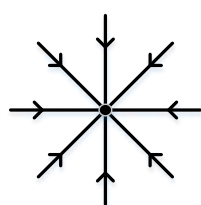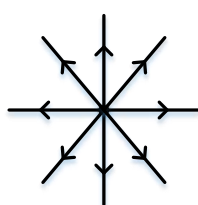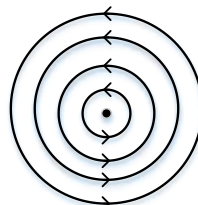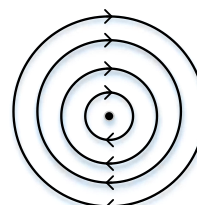
A   B   C   D

7. 右图为一质点运动的 v-t 图像，则该质点在 1s 末的加速度和 3s 末的速度分别为

The graph shows the time dependence of velocity of a mass. Its acceleration at the end of first second and velocity at the end of third second, respectively, are
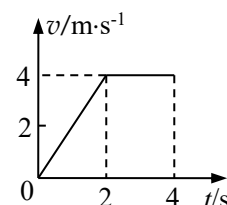
A) $4m/s^2$，$4m/s$

B) $2m/s^2$，$2m/s$

C) $2m/s^2$，$4m/s$

D) $4m/s^2$，$2m/s$

8. 一个物体做简谐运动，物体的加速度是

An object moves with simple harmonic motion. The acceleration of the object is

A) 常数

constant;

B) 总是指向背离振动中心的方向

always directed away from the center of the oscillation;

C) 在振动中心取极大值

a maximum at the center of oscillation;

D) 在最远离振动中心处取极大值

a maximum at the extremes of the oscillation.

9. 长距离输电时为何使用高电压与低电流？

Why are high voltages and low currents used when electricity is transmitted over long distance?

A) 电缆可与地面更近

Cables can be closer to the ground

B) 电子有更加大的漂移速度

Electrons have a greater drift speed

C) 减少了能量的损失

Energy losses are reduced

D) 电线的电阻减少了

Resistance of the power lines is reduced

10. X 和 Y 两容器维持同样的温度，X 体积为 4m³，而 Y 体积为 6m³，它们都盛有同一种理想气体。X 中的压强为 100Pa，而 Y 中的压强为 50Pa。两容器用不计体积的管子相连后，最后的压强为多少？

Two containers X and Y are maintained at the same temperature. X has volume 4m³ and Y has volume 6m³. They both hold an ideal gas. The pressure in X is 100Pa and the pressure in Y is 50Pa. The containers are then joined by a tube of negligible volume. What is the final pressure in the containers?

A) 70Pa

B) 75Pa

C) 80Pa

D) 150Pa

11. P 和 S 是一颗行星周围引力等势面上的两点，Q 和 R 是距离该颗行星更远处引力等势面上的两点，引力做的最大功是移动一个质点从

P and S are two points on a gravitational equipotential surface around a planet. Q and R are two points on a different gravitational equipotential surface at a greater distance from the planet. The greatest work done by the gravitational force is when moving a mass from

A) P 到 S

P to S

B) Q 到 R

Q to R

C) R 到 P

3
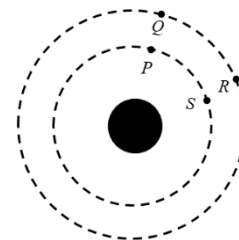
R to P

D) S 到 R

S to R

12. 如图所示，电压表与定值电阻相连后跨接在电压为 12V 的电源两端，电源内阻忽略不计，定值电阻与电压表的电阻都为 20Ω，电路设计为可提供可变输出电压，输出电压的范围是多少？

The diagram shows a potentiometer and a fixed resistor connected across a 12V battery of negligible internal resistance. The fixed resistor and the potentiometer each have resistance 20Ω. The circuit is designed to provide a variable output voltage. What is the range of output voltages?
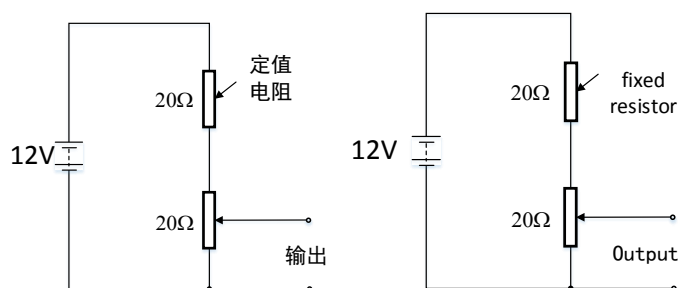
A) 0-6V

B) 0-12V

C) 6-12V

D) 12-20V

13. 两列频率为 300Hz 的行波叠加成驻波，驻波相邻波节间距离为 1.5m。，行波的速度为多少？

Two progressive waves of frequency 300Hz superpose to produce a stationary wave in which adjacent nodes are 1.5m apart. What is the speed of the progressive waves?

A) $100ms^{-1}$

B) $200ms^{-1}$

C) $450ms^{-1}$

D) $900ms^{-1}$

14. 下图显示能量在制冷系统中是如何传递的，哪个表述解释了为何要向系统输入功？

The schematic below shows how energy is transferred in a refrigeration system. Which statement explains why work is an input into this system?
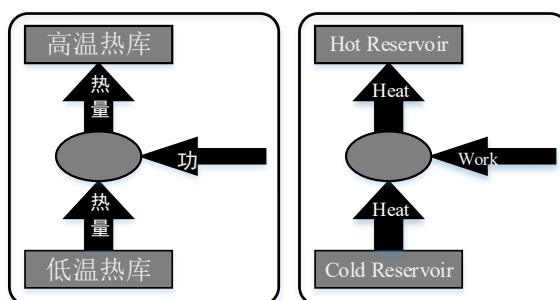
A) 克服温度梯度传递热能需要做功

Work is needed to move thermal energy against a temperature gradient

B) 减少传递过程中热能损失量需要做功

Work is needed to reduce the amount of thermal energy lost during transfer

C) 功利用低温热库的能量去降低系统的温度

Work uses energy from the cold reservoir to reduce the temperature of the system

D) 功给低温热库注入能量去增加流向高温热库的热流

Work adds energy to the cold reservoir to increase the heat flow to the hot reservoir

15. 下图显示凹面镜如何形成一个物的实像，物距离镜子 20cm，而像出现在距离镜子 5cm 处。问镜子的焦距是多少？

The diagram below shows how a concave mirror creates a real image of an object. The object is 20cm from the mirror and the image appears at a distance of 5cm from the mirror. What is the focal length of the mirror?
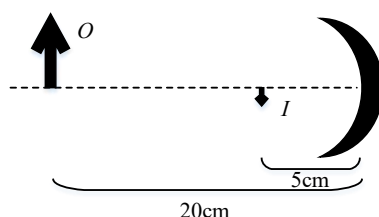
A) 2.5cm

B) 4cm

C) 25cm

D) 40cm

16. 一物体从某一确定高度以 $\vec{v}_0$ 的速度水平抛出，已知它落地时的速度为 $\vec{v}_t$，忽略空气阻力，那么它从抛出到落地的运动时间是

A mass is thrown horizontally off a building at velocity $\vec{v}_0$. As it touches ground, the velocity is $\vec{v}_t$. Assume air resistance is negligible. Time which the mass takes to reach ground is given by

A) $\dfrac{v_t - v_0}{g}$

B) $\dfrac{v_t - v_0}{2g}$

C) $\dfrac{\left(v_t^2 - v_0^2\right)^{1/2}}{g}$

D) $\dfrac{\left(v_t^2 - v_0^2\right)^{1/2}}{2g}$

17. 质点以加速度 a 做匀变速直线运动，经过一段时间，质点的速度为 v_t，速度的变化量为 Δv，则

A particle moves in a straight line with a constant acceleration a. After some time, its velocity reaches the value v_t and the change of velocity is Δv. Which of the following statements is true?

A) *a* 与 *v*ₜ 方向一定相同

   The directions of *a* and v_t must be the same;

B) *a* 与 *v*ₜ 方向一定相反

   a must be in the opposite direction of v_t;

C) *a* 与Δ*v* 方向一定相同

   The directions of *a* and Δv must be the same;

D) *a* 与Δ*v* 方向一定相反

   a must be in the opposite direction of Δv.

18．如图，开口向下的玻璃管竖直插在水银槽中，管内封闭了一定质量的气体，管内液面高于水银槽中液面。保持气体温度不变，缓慢地将玻璃管向下压。能描述管内气体状态变化过程的图像是（箭头表示状态的变化方向）
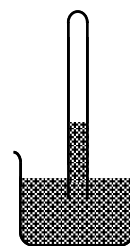
A glass tube is closed at one end and is immersed vertically in a big bath of mercury, as shown right. Air with certain mass is closed in the tube. At beginning, the liquid level inside the tube is higher than the level outside. Keep the air temperature constant and push the tube down. Which diagram correctly describes the change of states of air in the tube during the process (arrows in the diagrams represent the directions of the changes) ?
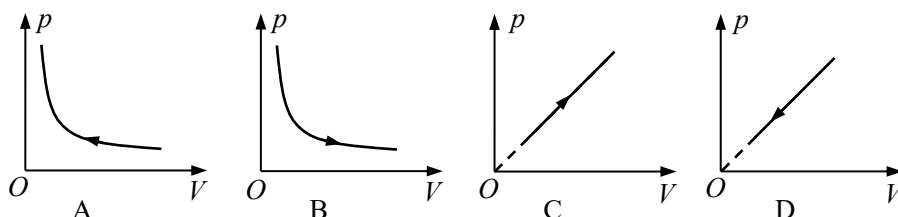
19．如图，水平直线表示电场中的一条电场线，A、B 为电场线上的两点。一负点电荷仅在电场力作用下，从静止开始由 A 向 B 做匀加速运动。则从 A 到 B，电场强度

Diagram shows a horizontal line representing an electric field line. A and B are the two points on the line. A point charge with negative charge begins to move from A to B with constant acceleration. Which of the following statements is true?

A) 逐渐增大，方向向左

   the magnitude of electric field increases from A to B and its direction is to the left;

B) 保持不变，方向向左

   the magnitude of electric field stays unchanged from A to B and its direction is to the left;

C) 逐渐增大，方向向右

   the magnitude of electric field decreases from A to B, and its direction is to the right;

D) 保持不变，方向向右

   the magnitude of electric field stays unchanged from A to B and its direction is to the right.

20．一列简谐横波沿 x 轴负方向传播，图 a 是 $t=1\,s$ 时的波形图，图 b 是某振动质点的位移随时间变化的图象，则图 b 描述的振动图象可能是图 a 中位于

A simple harmonic transverse wave is travelling in the medium along negative x-direction. The waveform at t=1s is shown in Figure a. The time dependence of displacement of a point mass in the medium is shown in Figure b. This point mass may be located at
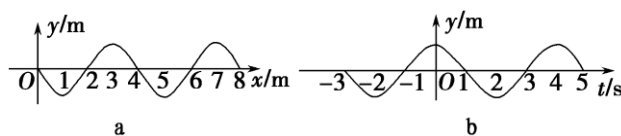
A) $x=0$ 处的质点

x=0;

B) $x=1\,m$ 处的质点

x=1m;

C) $x=2\,m$ 处的质点

x=2m;

D) $x=3\,m$ 处的质点

x=3m

二、单项选择题（共 10 题，每小题 4 分。每小题只有一个正确选项）

II. Single Choice problems（4 points each）

21．如图，两端开口、粗细均匀的 U 形管竖直放置，用两段水银柱封闭一段气体。能使气柱变长的措施是

A U tube of uniform cross section is placed vertically, as shown in diagram. Air is closed in the tube by two mercury columns. To increase the length of air column, we should

A) 增大外界气压

increase the air pressure of surroundings;

B) 减小外界气压

decrease the air pressure of surroundings;

C) 在 U 形管的左管滴入水银

add mercury into the left-hand side of U tube;

D) 在 U 形管的右管滴入水银

add mercury into the right-hand side of U tube.

22．氦原子被电离出一个核外电子，形成类氢结构的氦离子。已知基态的氦离子能量为 $E_1=-54.4\,eV$，氦离子的能级示意图如图，在具有下列能量的光子或者电子中，不能被基态氦离子吸收而发生跃迁的是
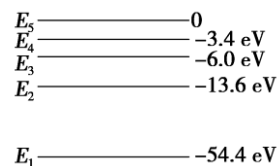
Singly-ionized helium (He$^+$) is a hydrogen-like atom. The energy of ground state of He$^+$ is E_1=-54.4eV. Its energy level diagram is shown right. Of the photon or electron with energy listed below, which can NOT be absorbed through the transition from the ground state of He$^+$?

A) 42.8 eV(光子)

photon with energy 42.8 eV;

B) 43.2 eV(电子)

   electron with energy 43.2 eV;

C) 41.0 eV(电子)

   electron with energy 41.0 eV;

D) 54.4 eV(光子)

   photon with energy 54.4 eV.

23．a、b 和 c 三个带电小球，c 带负电，a 和 b 相互排斥，b 和 c 相互吸引。则

There are three electric charges *a*, *b* and *c*. It is known that the charge of *c* is negative. *a* and *b* attract each other, while *b* and *c* repeal each other. Which of the following statements is true?

A) a 和 b 均带正电

   The charges of *a* and *b* are positive;

B) a 和 b 均带负电

   The charges of *a* and *b* are negative;

C) a 带负电，b 带正电

   The charge of *a* is negative, while the charge of *b* is positive;

D) a 带正电，b 带负电

   The charge of *a* is positive, while the charge of *b* is negative.

24．如图，两个共点力 F_1、F_2 的大小恒定。当两者的夹角θ从 60°逐渐增大到 120°的过程中，合力

Magnitudes of two concurrent forces remain constant, as shown right. With an increase of the angle θ from 60° to 120°, the magnitude of resultant force
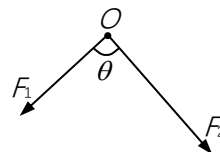
A) 逐渐增大

   monotonically increases;

B) 逐渐减小

   monotonically decreases;

C) 先增大后减小

   first increases and then falls;

D) 先减小后增大

   first decreases and then increases.

25．图 a 和图 b 分别表示某理想气体经历的两个循环过程；前者由甲过程（实线）和绝热过程（虚线）组成，后者由乙过程（实线）和等温过程（虚线）组成。下列说法正确的是

An ideal gas is taken through two cycles shown in Figure a and b. In Figure a, the cycle consists of process A (solid line) and adiabatic process (dash line). In figure b, the cycle consists of process B (solid line) and isothermal process (dash line). Which of the following statements is true?
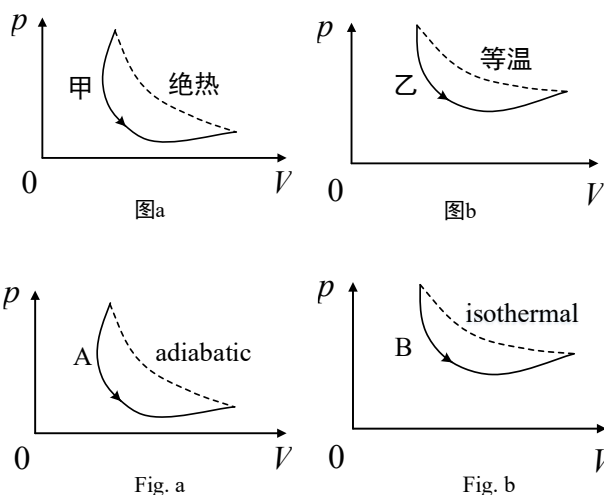
A) 甲、乙两过程均放热

The heats of both processes A and B are released;

B) 甲、乙两过程均吸热

The heats of both processes A and B are absorbed;

C) 甲过程放热，乙过程吸热

The heat of process A is released, while the heat of process B is absorbed;

D) 甲过程吸热，乙过程放热

The heat of process A is absorbed, while the heat of process B is released.

26．某透镜用折射率为 $n=1.50$ 的玻璃制成，它在空气中的焦距为 10.0cm，则它在水（水的折射率为4/3）中的焦距为

A thin lens is made of a glass of refractive index $n=1.50$. Its focal length in air is 10.0cm. Its focal length in water of refractive index 4/3 is

A) 10cm

B) 40cm

C) 30cm

D) 20cm

27．氢的同位素氚核子数为3，氚核具有放射性，其发生 β 衰变的半衰期为 12.43 年。则 6g 氚样品经过 50 年后，还剩下的氚样品质量约为

The nucleon number of isotope of hydrogen, tritium, is 3. The half-life of beta decay of tritium is 12.43 years. If you start with 6 grams of tritium, how much will remain after 50 years?

A) 0.3g

B) 0.37g

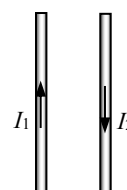C) 0.75g

D) 1.5g

28．如图，在两根平行直导线中，通以方向相反的电流 I_1 和 I_2，且 $I_1>I_2$，设两导线所受磁场力的大小分别为 F_1 和 F_2，则两导线

Two parallel wires carry currents, I_1 and I_2 ($I_1>I_2$), which are going in the opposite direction. The forces exerted on wires 1 and 2 are F_1 and F_2, respectively. Which of the following statements is true?

A) 相互吸引，且 $F_1>F_2$

Two wires attract each other and $F_1>F_2$;

B) 相互排斥，且 $F_1>F_2$

Two wires repeal each other and $F_1>F_2$;

C) 相互吸引，且 $F_1=F_2$

Two wires attract each other and $F_1=F_2$;

D) 相互排斥，且 $F_1=F_2$

Two wires repeal each other and $F_1=F_2$.

29．如图，电源电压和 a、b 两灯的电阻均不变。若滑动变阻器 R 的滑片向左移动，则

In the circuit shown right, the *emf* and resistances of two light bulbs remain constant. If the slide piece of slide rheostat moves from right to left,

A) a、b 两灯均变亮

two light bulbs become brighter;

B) a、b 两灯均变暗

two light bulbs become darker;

C) a 灯变亮，b 灯变暗

light bulb *a* becomes brighter, while light bulb *b* becomes darker;

D) a 灯变暗，b 灯变亮

light bulb *a* becomes darker, while light bulb *b* becomes brighter.
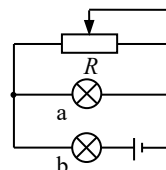
30．竖直墙上 a、b、c 三处各有一个水平细钉子，光滑圆环如图悬挂，圆环与三个钉子均有接触。a、b、c 三点中，A 在圆环的最高点，c 与圆环的圆心等高，则圆环受到钉子的弹力情况是

A frictionless circular ring is hung on three steel nails in the vertical wall, as shown right. Ring contacts with three nails. The nail *a* is located at the top of ring, while *c* is located on the same horizontal plane with the center of circle. Which nails exert elastic force on the ring?
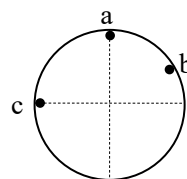
A) 可能只有 a 处有

Maybe only the nail *a* exerts a force on the ring;

B) 可能只有 a、b 两处有

Maybe only the nails *a* and *b* exert forces on the ring;

C) 一定只有 b、c 两处有

Certainly only the nails *b* and *c* exert forces on the ring;

D) a、b、c 三处一定都有

Certainly three nails exert forces on the ring.

上海交通大学国际本科生招生考试物理科考试试卷

（样卷）

参考答案

第一部分（共 20 题，每小题 3 分。每小题只有一个正确选项）

I. Single Choice problems（3 points each）

1、A	2、D	3、B	4、B	5、C
6、A	7、C	8、D	9、C	10、A
11、C	12、A	13、D	14、A	15、B
16、C	17、C	18、A	19、B	20、A

二、单项选择题（共 10 题，每小题 4 分。每小题只有一个正确选项）

II. Single Choice problems（4 points each）

21、B	22、A	23、A	24、B	25、C
26、B	27、B	28、D	29、D	30、A

上海交通大学国际本科生招生考试数学科考试大纲
(2021 年 11 月)

一、考试目的

数学在形成人的理性思维、科学精神和促进个人智力发展的过程中发挥着不可替代的作用。上海交通大学国际本科生招生考试数学科考试（以下简称"本考试"）是为上海交通大学国际本科生招生而进行的选拔考试，旨在全面考查考生是否掌握进一步学习所必需的数学知识、技能、思想和方法，了解考生是否具备用数学眼光观察世界、用数学思维思考世界、用数学语言表达世界的能力。

二、考核的技能

本考试注重考查考生的数学基础知识、基本技能、基本思想，对考生从数学角度发现和提出问题的能力、分析和解决问题的能力作出初步评价。

1. 数学基础知识与基本技能

（1）理解或掌握初等数学中有关数与运算、方程与代数、函数与分析、数据整理与概率统计、图形与几何的基础知识。

（2）理解集合、对应、函数、算法、数学建模、极限、概率、统计、化归、数形结合、分类讨论、分解与组合等基本数学思想；掌握比较、分析、类比、归纳、坐标法、参数法、逻辑划分、等价转换 等基本数学方法。

（3）能按照一定的规则和步骤进行计算、作图和推理；掌握数学阅读、表达以及文字语言、图形语言、符号语言之间进行转换的基本技能。

2. 数学抽象能力

能通过对数量关系与空间形式的抽象，得到数学研究对象。主要包括从数量与数量关系、图形与图形关系中抽象出数学概念及概念之间的关系，从事物的具体背景中抽象出一般规律和结构，并用数学语言予以表征。

3. 逻辑推理能力

能正确判断因果关系,从一些事实和命题出发、依据规则推出其他命题,并能正确而简明地表述推理过程。主要包括两类：一类是从特殊到一般的推理，推理形式主要有归纳、类比；另一类是从一般到特殊的推理，推理形式主要有演绎。

4. 直观想象能力

能借助几何直观和空间想象感知事物的形态与变化,利用空间形式特别是图

形，理解和解决数学问题。主要包括：借助空间形式认识事物的位置关系、形态变化与运动规律；利用图形描述、分析数学问题；建立形与数的联系，构建数学问题的直观模型，探索解决问题的思路。

5. 数学运算能力

在明晰运算对象的基础上，依据运算法则解决数学问题。主要包括：理解运算对象，掌握运算法则，探究运算思路，选择运算方法，设计运算程序，求得运算结果等。

6. 数学应用与探究能力

（4）能运用基础知识、基本技能、数学思想方法以及适当的解题策略，解决有关数学问题。
（5）能通过建立数学模型，解决有关社会生活、生产实际中的问题，并能解释其实际意义。
（6）能运用有关的数学思想和方法对问题进行探究，并正确地表述过程和结果。

三、试卷结构

考试时长为 60 分钟，卷面满分 100 分。考查内容、测试题型、题目数量和所占分值比例等如下表所示。

主要考查内容及权重分配

考查内容	测试题型	题目数量	分值比重 (%)	时间 （分钟）
预备知识	选择题	4	14	
函数	选择题	13	44	60
几何与代数	选择题	8	30	
概率与统计	选择题	3	12	
总计			**100**	

四、考试形式

本考试采用计算机化考试的形式，所有题型在计算机屏幕上呈现。试题采用文字、图形、图表、照片等形式呈现。

五、评分标准和方法

本考试采用单选客观题的形式进行考核。选择正确得分，选择错误不得分。

附录 1：应知应会知识点

一、预备知识

1. **集合**：集合的概念与表示，集合的基本关系，集合的交、并、补等基本运算。

2. **常用逻辑用语**：必要条件、充分条件、充要条件，全称量词与存在量词，全称量词命题与存在量词命题的否定。

3. **相等关系与不等关系**：等式与不等式的性质，基本不等式。

4. **方程和不等式求解**：解一元二次方程与不等式、含绝对值的方程与不等式、分式不等式等。

二、函数

1. **函数的概念与性质**：函数的概念，函数的四则运算和复合，函数的单调性、最大值、最小值、奇偶性、周期性及其几何意义。

2. **反函数**：反函数的概念，简单函数的反函数，函数及其反函数之间的联系与区别，函数及其反函数的图像的关系。

3. **幂函数、指数函数、对数函数**：幂函数的概念、运算及性质，指数函数的概念、运算及性质，对数函数的概念、运算及性质、换底公式。

4. **三角函数**：三角函数的概念和性质、同角三角函数的基本关系式、两角和与差公式，二倍角公式，半角公式，积化和差公式，和差化积公式，三角恒等变换。

5. **反三角函数**：反三角函数的概念和性质、反三角函数与三角函数的关系、反三角函数值的计算。

6. **函数的应用**：在实际情境中，会选择合适的函数类型刻画现实问题的变化规律。

7. 数列：数列的概念，数学归纳法。

8. **等差数列**：等差数列的概念、通项公式、前 n 项和公式，等差数列与一元一次函数的关系。

9. **等比数列**：等比数列的概念、通项公式、前 n 项和公式，等比数列与指数函数的关系。

10. **数列的性质**：有界数列、周期数列，数列的单调性及其应用。

11. **简单的递归数列**：简单递推关系决定的数列的通项公式、前 n 项和公式。

12. **一元函数的导数及其应用**：导数概念及其几何意义，导数的四则运算法则，简单的复合函数求导，函数的单调性与导数的关系，函数在某点取得极值的必要条件和充分条件，给定闭区间上函数的最大值、最小值。

三、几何与代数

1. **向量及其应用**：向量概念，向量运算，向量基本定理及坐标表示，向量的正交分解，向量投影以及投影向量，应用向量解三角形等。

2. **复数**：复数及相关概念，复数的运算，复数的三角表示。

3. **立体的表面积和体积**：球、棱柱、圆柱、棱锥、圆锥、棱台的表面积和体积的计算公式。

4. **点、直线、平面及其相互之间的距离和夹角**：空间点、直线、平面的位置关系、性质定理、判定定理，直线与直线、直线与平面、平面与平面的距离与夹角。

5. **直线的方程、直线与直线的位置关系**：直线斜率的计算，两条直线平行或垂直的判定，直线方程的几种形式（点斜式、两点式及一般式等），两条直线的交点坐标，两点间的距离公式、点到直线的距离公式。

6. **圆的方程，直线与圆的位置关系、圆与圆的位置关系**：圆的标准方程与一般方程，判断直线与圆、圆与圆的位置关系。

7. **圆锥曲线的定义、标准方程及简单几何性质**：椭圆、抛物线、双曲线三类圆锥曲线的定义、标准方程、简单几何性质、与直线的交点、及其简单应用。

四、概率与统计

1. **计数原理**：两个基本计数原理，排列与组合，排列数公式、组合数公式，二项式定理。

2. **概率**：随机事件的独立性，随机事件的条件概率，古典概型中简单随机事件的概率，全概率公式、贝叶斯公式，离散型随机变量及其分布列，二项分布、超几何分布、正态分布及其数字特征，解决简单的实际问题。

3. **统计**：获取数据的基本途径及相关概念，抽样，统计图表，用样本估计总体（平均数、中位数、众数，标准差、方差、极差），成对数据的统计相关性、相关系数，一元线性回归模型、最小二乘估计方法，$2×2$列联表独立性检验及其应用。

上海交通大学国际本科生招生考试数学科考试试卷

（样卷）

SJTU International Undergraduate Entrance Examination

(Mathematics sample exam papers)

第一部分：下列问题有且仅有一个正确答案 (每题 3 分，共 42 分)

Section 1: The following problems have one and only one correct answer.
　　　　(3 points for each, 42 points total)

1. 设集合 $A = \{1,2,4\}, B = \{2,4,5\}$，　则 $A \cap B = （　）$.

   If set $A = \{1,2,4\}, B = \{2,4,5\}$，　then $A \cap B = （　）$.
   （A）$\{2,4\}$　（B）$\{1,2,4,5\}$　（C）$\{1\}$　（D）$\{1,5\}$

2. 函数 $y = (x-1)^{\frac{1}{2}} + (4-x)^{-\frac{3}{2}}$ 的定义域为（　）.

   The domain of the function $y = (x-1)^{\frac{1}{2}} + (4-x)^{-\frac{3}{2}}$ is（　）.

   （A）$[1,4)$　　（B）$(-\infty, 1)$　　（C）$[4, +\infty)$　　（D）$(1, 4]$

3. 下列公式中，正确的是（　）.

   In the following formulae, the one that must be correct is（　）.
   （A）$\cos 2x = 2\cos^2 x - 1$　　（B）$\cos 2x = 2\sin^2 x - 1$
   （C）$\sin 2x = 2\cos^2 x - 1$　　（D）$\sin 2x = 2\sin^2 x - 1$

4. 设 m 是实常数. 若直线 $l_1: 2x + my + 1 = 0$ 与直线 $l_2: y = 3x - 1$ 平行，则 $m = （　）$.

   Let m be a real number. If line $l_1: 2x + my + 1 = 0$ is parallel to line $l_2: y = 3x - 1$, then $m = （　）$.

   （A）$-\dfrac{2}{3}$　（B）$\dfrac{2}{3}$　（C）6　（D）-6

5. 设平面上的动点 P 到定点 $F(2,0)$ 的距离等于 P 到直线 $x + 2 = 0$ 的距离，则点 P 的轨迹方程为（　）.

   If the distance from moving point P to point $F(2,0)$ equals to the distance from P to the straight line $x + 2 = 0$, then the trajectory equation of P is（　）.
   （A）$y^2 = 8x$　　（B）$y^2 = -8x$　　（C）$x^2 = 8y$　　（D）$x^2 = -8y$

6. 下列函数中，在其定义域上是单调递减的函数是（　）.

   In the following functions, the one that is decreasing in its domain is（　）.

(A) $y = 2^{-x}$ （B）$y = \cot x$ （C）$y = \frac{1}{x^2+1}$ （D）$y = x$

7. 下列选项中，正确的是（ ）.

   Among the following options, the correct one is（ ）.

   （A）$y = x^3 + \frac{1}{x}$ 和 $y = \log_2(x + \sqrt{x^2 + 1})$ 均是奇函数

   $y = x^3 + \frac{1}{x}$ and $y = \log_2(x + \sqrt{x^2 + 1})$ are both odd functions

   （B）$y = x^3 + \frac{1}{x}$ 是奇函数，但 $y = \log_2(x + \sqrt{x^2 + 1})$ 不是奇函数

   $y = x^3 + \frac{1}{x}$ is an odd function but $y = \log_2(x + \sqrt{x^2 + 1})$ is not an odd function

   （C）$y = \log_2(x + \sqrt{x^2 + 1})$是奇函数，但 $y = x^3 + \frac{1}{x}$ 不是奇函数

   $y = \log_2(x + \sqrt{x^2 + 1})$ is an odd function but $y = x^3 + \frac{1}{x}$ is not an odd function

   （D）$y = x^3 + \frac{1}{x}$ 和 $y = \log_2(x + \sqrt{x^2 + 1})$ 均不是奇函数

   neither $y = x^3 + \frac{1}{x}$ nor $y = \log_2(x + \sqrt{x^2 + 1})$ is an odd function

8. 已知 $\{a_n\}$ 是等差数列, 且 $a_2 = 12, a_8 = 18$, 则 $a_5 =$（ ）.

   Given that $\{a_n\}$ is an arithmetic sequence, and $a_2 = 12, a_8 = 18$, then $a_5 =$（ ）.
   （A）15　　（B）$6\sqrt{6}$　　（C）30　　（D）216

9. 若函数 $f(x)$ 的反函数 $f^{-1}(x) = x^2\ (x > 0)$, 则 $f(4) =$（ ）.

   If the inverse function of $f(x)$ is $f^{-1}(x) = x^2\ (x > 0)$, then $f(4) =$（ ）.
   （A）2　　（B）-2　　（C）16　　（D）-16

10. $\arctan\left(\tan\frac{5\pi}{6}\right) =$（ ）.

    （A）$-\frac{\pi}{6}$　　　（B）$\frac{\pi}{6}$　　　（C）$-\frac{5\pi}{6}$　　　（D）$\frac{5\pi}{6}$

11. 已知椭圆 $\Gamma : \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ 的一个焦点是$(-2\sqrt{3}, 0)$. 若$a = 2b$, 则$b =$（ ）.

    Let $(-2\sqrt{3}, 0)$ be one focus of the ellipse $\Gamma : \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. If $a = 2b$, then $b =$（ ）.

    （A）2　　　（B）$\frac{\sqrt{60}}{5}$　　　（C）4　　　（D）$\frac{12}{5}$

12. 设 a, b 均为正实数, 则 "$a + b \leq 2$" 是 "$a^2 + b^2 \leq 2$" 的（　　）.

   Let a, b be positive real numbers, then statement "$a + b \leq 2$" is a (　　) for statement "$a^2 + b^2 \leq 2$".

   （A）必要但非充分条件

   　　　necessary but not sufficient condition

   （B）充分但非必要条件

   　　　sufficient but not necessary condition

   （C）既非充分又非必要条件

   　　　neither sufficient nor necessary condition

   （D）充分且必要条件

   　　　sufficient and necessary condition

13. 函数 $\sin(2x + 3)$ 的导数是（　　）.

   The derivative of function $\sin(2x + 3)$ is（　　）.

   （A）$2\cos(2x + 3)$　　（B）$\cos(2x + 3)$　　（C）$-2\cos(2x + 3)$　　（D）$-\cos(2x + 3)$

14. 曲线 $y = x^3 + 3x + 1$ 在点 $P(0,1)$ 处的切线方程是（　　）.

   The tangential equation of curve $y = x^3 + 3x + 1$ at point $P(0,1)$ is　（　　）.

   （A）$3x - y + 1 = 0$　　（B）$x - 3y + 3 = 0$　　（C）$3x + y - 1 = 0$　　（D）$x + 3y - 3 = 0$

第二部分：下列问题有且仅有一个正确答案 (每题 4 分，共 48 分)

Section 2: The following problems have one and only one correct answer.
(4 points for each, 48 points total)

15. 不等式 $\dfrac{1}{x-2} < \dfrac{1}{x}$ 的解集为（　　）.

   The solution set of the inequality $\dfrac{1}{x-2} < \dfrac{1}{x}$ is（　　）.

   （A）$(0,2)$　　（B）$(1,3)$　　（C）$(-\infty, -1)$　　（D）$(2, +\infty)$　　（E）$(-1, 0)$

16. 已知等比数列 $\{a_n\}$ 的首项 $a_1 = 1$, 公比 $q = 2$, 则 $\{a_n\}$ 的前 8 项的和 $S_8 = $（　　）.

   If the first term a_1 of the geometric sequence $\{a_n\}$ is 1, and the common quotient $q = 2$, then the sum S_8 of the first 8 terms of $\{a_n\}$ is（　　）.

   （A）255　　（B）127　　（C）63　　（D）511　　（E）512

17. 已知实数 a, b 满足 $2^{2a-b} = 4^{a+b} = 3$, 则 $a = $（　　）.

If real numbers a, b satisfy $2^{2a-b} = 4^{a+b} = 3$, then $a = ($ $)$.

(A) $\log_4 3$　(B) $\log_2 3$　(C) $\log_3 2$　(D) $\log_3 4$　(E) $\log_4 2$

18. 已知 $a, b, 1, 2$ 的中位数是 3，平均数是 4，则 $ab = ($ $)$.

Let the median of $a, b, 1, 2$ be 3, the average of $a, b, 1, 2$ be 4, then $ab = ($ $)$.

(A) 36　(B) 22　(C) 30　(D) 40　(E) 42

19. 已知点 P 在曲线 $C: 2x^2 - 4x + 2y^2 - 12y = 5$ 上，点 Q 在直线 $x + y + 3 = 0$ 上，则点P 和 Q 之间点距离 $|PQ|$ 的最小值为（ ）.

If point P is on the curve $C: 2x^2 - 4x + 2y^2 - 12y = 5$, and point Q is on the line $x + y + 3 = 0$, then the minimum distance $|PQ|$ between points P and Q is （ ）.

(A) $\sqrt{2}$　(B) $\dfrac{\sqrt{2}}{2}$　(C) 1　(D) 0　(E) 2

20. 设复数 $z = \sqrt{3} + i$, 其中 i 是虚数单位, 则 $z^5 = ($ $)$.

Let complex number z be defined as $z = \sqrt{3} + i$, where i is the unit of imaginary numbers, then $z^5 = ($ $)$.

(A) $-16\sqrt{3} + 16i$　　(B) $16\sqrt{3} + 16i$　　(C) $-16\sqrt{3} - 16i$

(D) $16\sqrt{3} - 16i$　　(E) $16\sqrt{3} + 16\sqrt{3}i$

21. 在所有两位数中，个位数和十位数之和事偶数的数有（ ）.

In all two-digit numbers, the number of those which the sum of its ones digit and its tens digit is an even number is （ ）.

(A) 45　(B) 25　(C) 40　(D) 20　(E) 50

22. 若实数 x, y 满足 $\sin x \cos y = \dfrac{4}{5}$, $\sin y \cos x = \dfrac{1}{5}$, 则 $\cos 2x = ($ $)$.

If real numbers x, y satisfy $\sin x \cos y = \dfrac{4}{5}$, $\sin y \cos x = \dfrac{1}{5}$, then $\cos 2x = ($ $)$.

(A) $-\dfrac{3}{5}$　(B) $\dfrac{3}{5}$　(C) $\dfrac{4}{5}$　(D) $-\dfrac{4}{5}$　(E) $\dfrac{2}{5}$

23. 三位同学参加跳过、跳远和铅球项目的比赛. 若每人都选择两个项目，则有且仅有两人选择的项目相同的概率是（ ）.

Three students participated in high jump, long jump and shot put competitions. If everyone chooses two of these three items, then the probability that there are exactly two people choosing same items is （ ）.

(A) $\dfrac{2}{3}$　(B) $\dfrac{1}{3}$　(C) $\dfrac{2}{9}$　(D) $\dfrac{1}{9}$　(E) $\dfrac{1}{6}$

24. 设双曲线 $C: x^2 - \frac{y^2}{3} = 1$ 的左右焦点分别为 F_1 和 F_2. 若点 P 在 C 上，且 $\frac{\sin \angle PF_2F_1}{\sin \angle PF_1F_2} = 2$, 则 $\cos \angle F_1PF_2 = ($ $)$.

Let the foci of the hyperbola $C: x^2 - \frac{y^2}{3} = 1$ be F_1 and F_2, respectively. If point P is on C, such that $\frac{\sin \angle PF_2F_1}{\sin \angle PF_1F_2} = 2$, then $\cos \angle F_1PF_2 = ($ $)$.

(A) $\frac{1}{4}$ (B) $-\frac{1}{2}$ (C) $\frac{1}{6}$ (D) $-\frac{1}{5}$ (E) $\frac{1}{3}$

25. 设 $P - ABC$ 是棱长为 6 的正四面体，点 D, E, F 分别是三角形 ΔPAB ΔPBC ΔPAC 的重心, 则三棱锥 $P - DEF$ 的体积为（ ）.

Let $P - ABC$ be a tetrahedron whose edges have a length of 6. If points D, E, F are the barycenter of triangles ΔPAB ΔPBC ΔPAC respectively, then the volume of the trigonal pyramid $P - DEF$ is （ ）.

(A) $\frac{4\sqrt{2}}{3}$ (B) $\frac{\sqrt{2}}{3}$ (C) $\frac{3\sqrt{2}}{2}$ (D) $2\sqrt{2}$ (E) $4\sqrt{2}$

26. 设数列 $\{a_n\}, \{b_n\}$, 和 $\{c_n\}$ 满足：对任意正整数 n, $a_{n+1} = (-1)^n(a_n^2 + 1)$, $b_n = a_n a_{n+1}$, $c_n = \cos a_n$. 下列论断中正确的的是（ ）.

Let sequences $\{a_n\}, \{b_n\}$, and $\{c_n\}$ satisfy: for an arbitrary integer n, $a_{n+1} = (-1)^n(a_n^2 + 1)$, $b_n = a_n a_{n+1}$, $c_n = \cos a_n$, then the one that must be correct in the following statements is （ ）.

(A) $\{b_n\}$ 是单调递减数列

   $\{b_n\}$ is a decreasing sequence

(B) $\{b_n\}$ 是单调递增数列

   $\{b_n\}$ is an increasing sequence

(C) $\{c_n\}$ 是单调递增数列

   $\{c_n\}$ is an increasing sequence

(D) $\{a_n\}$ 是单调递增数列

   $\{a_n\}$ is an increasing sequence

(E) $\{c_n\}$ 是单调递减数列

   $\{c_n\}$ is a decreasing sequence

Section 3: The following problems have one and only one correct answer.
   (5 points for each, 10 points total)

27. 设 A, B, C 是三角形 ΔABC 的三个顶点，且对任意的实数 λ 恒有 $|\overrightarrow{BA} - \lambda\overrightarrow{BC}| \geq 2|\overrightarrow{BC}|$。若 $|\overrightarrow{BC}| = 1$，则三角形 ΔABC 周长的最小值为（ ）.

    Let points A, B, C be the three vertices of triangle ΔABC, such that for an arbitrary real number λ, the following always holds true: $|\overrightarrow{BA} - \lambda\overrightarrow{BC}| \geq 2|\overrightarrow{BC}|$. If $|\overrightarrow{BC}| = 1$, then the minimum value of the perimeter of the triangle ΔABC is （ ）.

    （A）$1 + \sqrt{17}$ （B）$1 + \sqrt{12}$ （C）$1 + \sqrt{7}$ （D）$1 + \sqrt{22}$ （E）$1 + \sqrt{27}$

28. 已知实数 x, y, z 满足 $x^2 + y^2 + z^2 = 1$，则 $xy + 2yz$ 的最大值为（ ）.

    If x, y, z are all real numbers, and $x^2 + y^2 + z^2 = 1$, then the maximum value of $xy + 2yz$ is （ ）.

    （A）$\dfrac{\sqrt{5}}{2}$ （B）$\dfrac{\sqrt{2}}{2}$ （C）$\dfrac{\sqrt{3}}{2}$ （D）2 （E）$\dfrac{1}{2}$

参考答案：

1~28：A

参考答案：

1~28：A