STUDENT TEST BOOKLET

READING SECTION (40 questions)

PASSAGE 1

You should spend about 20 minutes on **Questions 1-13**, which are based on Reading Passage 1 below.

The Dawn of the Space Age

The human fascination with the cosmos is as old as civilization itself. For millennia, we have gazed at the stars, dreaming of what lies beyond our planet. However, it was not until the mid-20th century that these dreams began to materialize into reality. The development of powerful rocket technology, a direct descendant of ballistic missiles pioneered by Germany during World War II, set the stage for an unprecedented era of exploration. This period, often referred to as the 'Space Race,' was a heated competition between the world's two superpowers: the United States and the Soviet Union.

The initial strides into space were taken by the Soviet Union. On October 4, 1957, they successfully launched Sputnik 1, the first-ever artificial satellite, into orbit. This event sent shockwaves across the globe and marked the official beginning of the Space Age. The Soviets continued to dominate the early years of space exploration, achieving another monumental milestone on April 12, 1961, when cosmonaut Yuri Gagarin became the first human to orbit the Earth aboard the Vostok 1 spacecraft. His single orbit around our planet, lasting 108 minutes, was a testament to human ingenuity and courage.

The United States, determined not to be left behind, accelerated its own space program. Their first major success came on January 31, 1958, with the launch of the Explorer 1 satellite. This was followed by a series of crewed missions that aimed to catch up with and eventually surpass the achievements of the Soviets. In 1961, Alan Shepard became the first American in space, and on February 20, 1962, John Glenn made history as the first American to orbit the Earth.

The ultimate prize in the Space Race was the Moon. In 1961, U.S. President John F. Kennedy boldly declared a national goal of "landing a man on the Moon and returning him safely to the Earth within a decade." This ambitious objective spurred a massive technological and scientific effort, culminating in the historic Apollo 11 mission. On July 20, 1969, the world watched in awe as astronaut Neil Armstrong took his famous "one giant leap for mankind," becoming the first human to walk on the lunar surface. Between 1969 and 1972, a total of six Apollo missions explored the Moon, gathering invaluable data and samples.

The decades following the Moon landing saw a shift in the focus of space exploration. The 1970s were marked by the launch of Skylab, America's first space station, and the Apollo-Soyuz Test Project, a joint mission between the U.S. and the Soviet Union that symbolized a new era of cooperation. Unmanned probes, such as the Mariner and Voyager spacecraft, ventured further into our solar system, sending back breathtaking images and data from Mars, Jupiter, and Saturn.

The 1980s ushered in the age of the Space Shuttle, a reusable spacecraft that became the workhorse of both civilian and military space missions. The shuttle was instrumental in launching, repairing, and recovering satellites, conducting scientific research, and constructing the International Space Station (ISS). However, the shuttle program was also marred by tragedy. The Challenger disaster in 1986 and the Columbia disaster in 2003 resulted in the loss of two shuttles and their crews, serving as a stark reminder of the inherent risks of space travel. The shuttle program was eventually retired in 2011 after 30 years of service.

Today, space exploration is a truly global and collaborative endeavor. The International Space Station, a permanently inhabited research laboratory in low Earth orbit, is a shining example of this international partnership. Astronauts and cosmonauts from numerous countries live and work together on the ISS, conducting experiments that are impossible to perform on Earth. As we look to the future, the focus is once again on deep space exploration, with Mars being the next great frontier. The journey to the Red Planet will undoubtedly be challenging, but it is a challenge that the international space community is poised to meet.

Questions 1-13

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 on your answer sheet, write

- **TRUE** if the statement agrees with the information
- **FALSE** if the statement contradicts the information
- **NOT GIVEN** if there is no information on this*

1. The development of ballistic missiles was the primary reason for the start of the Space Race.
2. The Soviet Union and the United States launched their first satellites in the same year.
3. Yuri Gagarin's space flight lasted for more than two hours.
4. John F. Kennedy's goal to land a man on the moon was achieved within the timeframe he set.
5. The Apollo-Soyuz Test Project was the first time astronauts from different countries worked together in space.
6. The Space Shuttle was designed to be a single-use spacecraft.

Questions 7-10

Choose the correct letter, ***A, B, C*** *or* ***D****.*

Write the correct letter in boxes 7-10 on your answer sheet.

1. What was the main purpose of the Space Race? A. To develop new weapons B. To establish a colony on the Moon C. To demonstrate technological superiority D. To create a global communication network

2. Which of the following was a direct consequence of the Sputnik 1 launch? A. The United States immediately sent a man to the Moon. B. The Soviet Union launched the Vostok 1 mission. C. The United States accelerated its own space program. D. Germany started developing ballistic missiles.

3. The Space Shuttle program was responsible for all of the following EXCEPT: A. Building the International Space Station. B. Launching military satellites. C. Sending the first human to orbit the Earth. D. Conducting scientific experiments in space.

4. What does the author suggest about the future of space exploration? A. It will be too expensive to continue. B. It will be focused solely on Mars. C. It will be a

collaborative international effort. D. It will be dominated by the United States.

Questions 11-13

Complete the summary below.

Choose ***NO MORE THAN TWO WORDS*** *from the passage for each answer.*

Write your answers in boxes 11-13 on your answer sheet.

The period following the Moon landings saw a change in the direction of space exploration. The 1970s featured America's first **11** _______________, Skylab, and a joint mission with the Soviet Union. Unmanned probes like Mariner and Voyager explored other planets. The 1980s were dominated by the **12** _______________, a reusable vehicle that had a 30-year career. Despite its successes, the program experienced two major tragedies. Today, international cooperation is exemplified by the **13** _______________, a permanently crewed research laboratory in orbit.

PASSAGE 2

You should spend about 20 minutes on **Questions 14-26**, which are based on Reading Passage 2 below.

The New Space Race: From Billionaires to the Red Planet

A. The 21st century has witnessed the dawn of a new space race, one that is vastly different from the politically charged competition of the Cold War era. This new race is not between superpowers vying for ideological dominance, but rather a multifaceted endeavor driven by a combination of national ambition, scientific curiosity, and, increasingly, commercial enterprise. The players in this new area are not just government agencies like NASA, but also a new breed of visionary billionaires and private companies who are revolutionizing the space industry.

B. The rise of the commercial space sector is perhaps the most significant development in this new era of exploration. Companies like SpaceX, founded by Elon Musk, and Blue Origin, established by Jeff Bezos, are at the forefront of this revolution. By developing reusable rocket technology, these companies have dramatically reduced the cost of launching payloads into orbit, making space more accessible than ever before. SpaceX's Falcon 9 rocket, for instance, can be launched, landed, and reused, a feat that was once considered science fiction. This has not only disrupted the traditional aerospace industry but has also opened up new possibilities for space tourism, satellite deployment, and even interplanetary travel.

C. Space tourism, once a distant dream, is now on the verge of becoming a reality. Companies like Virgin Galactic and Blue Origin are developing sub-orbital spaceplanes that will offer paying customers a few minutes of weightlessness and a breathtaking view of our planet from the edge of space. While the price tag for these experiences is currently astronomical, it is expected to decrease over time as the technology matures and competition increases. The prospect of ordinary citizens traveling to space for recreational purposes raises a host of questions, from safety and regulation to the environmental impact of frequent launches.

D. Beyond the thrill of space tourism, the new space race has its sights set on a much more ambitious goal: the colonization of other worlds. Mars, our celestial neighbor, is the primary target for these aspirations. Both NASA and private companies like SpaceX are actively developing the technologies and strategies needed to send humans to the Red Planet. NASA's Artemis program, which aims to establish a sustainable human presence on the Moon, is seen as a crucial stepping stone towards a crewed mission to Mars. The lessons learned and the technologies developed during the Artemis missions will be invaluable for the long-duration spaceflights required to reach and inhabit Mars.

E. The challenges of a human mission to Mars are immense. The journey itself would take several months, exposing astronauts to the harsh environment of deep space, including high levels of radiation and the debilitating effects of microgravity. Once on Mars, the colonists would have to contend with a thin atmosphere, extreme temperatures, and a lack of breathable air. Establishing a self-sufficient colony on Mars would require unprecedented technological innovation, from in-situ resource utilization (ISRU) – the ability to live off the land by extracting resources like water and oxygen from the Martian soil – to advanced life support systems and closed-loop habitats.

F. Despite these formidable challenges, the dream of becoming a multi-planetary species continues to inspire and motivate. The potential benefits of colonizing Mars are numerous, from ensuring the long-term survival of humanity in the face of existential threats on Earth to driving technological innovation and expanding our understanding of the universe. The new space race, with its blend of public and private enterprise, is a testament to the enduring human spirit of exploration. As we stand on the cusp of this new era, the question is not if we will go to Mars, but when.

Questions 14-26

Questions 14-19

*Reading Passage 2 has six paragraphs, **A-F**.*

Choose the correct heading for each paragraph from the list of headings below.

*Write the correct number, **i-viii**, in boxes 14-19 on your answer sheet.*

List of Headings

i. The hurdles of interplanetary colonization ii. The role of government in space exploration iii. The commercialization of space travel iv. The future of space tourism v. A new era of space exploration vi. The scientific benefits of a Mars colony vii. The stepping stone to the Red Planet viii. The environmental impact of space launches

1. Paragraph A
2. Paragraph B
3. Paragraph C
4. Paragraph D
5. Paragraph E
6. Paragraph F

Questions 20-23

*Choose the correct letter, **A, B, C** or **D**.*

Write the correct letter in boxes 20-23 on your answer sheet.

1. What is the most significant difference between the old and new space races? A. The level of government funding B. The involvement of private companies C. The focus on scientific research D. The speed of technological development

2. The author mentions SpaceX and Blue Origin as examples of companies that are: A. Making space travel more affordable. B. Primarily focused on space tourism. C. Funded exclusively by government contracts. D. Developing new technologies for deep space communication.

3. According to the passage, the Artemis program is important because it will: A. Be the first mission to land humans on Mars. B. Test technologies needed for a Mars

mission. C. Create a permanent colony on the Moon. D. Be a joint mission between NASA and SpaceX.

4. What does the author believe is the ultimate goal of the new space race? A. To make space tourism accessible to everyone. B. To establish a self-sufficient colony on Mars. C. To prove the existence of extraterrestrial life. D. To reduce the cost of satellite deployment.

Questions 24-26

Complete the sentences below.

Choose ***NO MORE THAN THREE WORDS*** *from the passage for each answer.*

Write your answers in boxes 24-26 on your answer sheet.

1. The development of ________________ has been a key factor in reducing the cost of space launches.
2. One of the main challenges for astronauts on a mission to Mars is exposure to high levels of ________________.
3. The ability to extract resources from the Martian environment is known as ________________.

PASSAGE 3

You should spend about 20 minutes on **Questions 27-40**, which are based on Reading Passage 3 below.

The Perils of the Final Frontier: Navigating the Risks of Space Exploration

The dream of venturing into the cosmos has always been accompanied by a stark awareness of the dangers that lie in wait. While the rewards of space exploration are immense, the risks to human life are equally profound. From the moment an astronaut straps into their seat, they are embarking on a journey fraught with peril, a journey that pushes the boundaries of human endurance and technological capability. Understanding and mitigating these risks is paramount to the future of crewed spaceflight.

One of the most significant threats to astronauts is the space environment itself. Outside the protective cocoon of Earth's atmosphere and magnetic field, astronauts are exposed to a constant barrage of radiation. This radiation comes from two main sources: the sun, in the form of solar flares and coronal mass ejections, and galactic cosmic rays (GCRs), which are high-energy particles originating from outside our solar system. Prolonged exposure to this radiation can have devastating effects on the human body, increasing the risk of cancer, damaging the central nervous system, and even causing cognitive impairment.

Another major challenge is the effect of microgravity on the human body. In the weightless environment of space, the body undergoes a series of physiological changes. Bones lose density, muscles atrophy, and the cardiovascular system weakens. Astronauts can experience a fluid shift towards their head, leading to vision problems and increased intracranial pressure. Upon returning to Earth, they often face a difficult period of readjustment as their bodies re-acclimate to gravity. While exercise and other countermeasures can help to mitigate some of these effects, the long-term consequences of living in microgravity are still not fully understood.

Beyond the physiological challenges, there are also significant psychological hurdles to overcome. Astronauts on long-duration missions, such as a trip to Mars, will be confined to a small, enclosed space for months or even years. This isolation and confinement can lead to a range of psychological issues, including depression, anxiety, and interpersonal conflicts. The monotony of the daily routine, the lack of privacy, and the constant awareness of being millions of miles from home can take a heavy toll on mental health. Maintaining crew morale and cohesion will be just as critical as maintaining the life support systems.

The sheer distance from Earth presents another set of challenges. A mission to Mars, for example, would involve a communication delay of up to 20 minutes each way. This means that in the event of an emergency, the crew would have to be largely autonomous, capable of making critical decisions and carrying out complex procedures without real-time support from Mission Control. This necessitates a new level of training and preparedness, as well as highly reliable and autonomous systems.

Finally, there is the ever-present risk of equipment failure. A spacecraft is a complex machine with millions of components, and a single malfunction can have catastrophic consequences. The Challenger and Columbia disasters serve as tragic reminders of this reality. Ensuring the reliability and redundancy of all critical systems, from life support to propulsion, is a constant focus for engineers and mission planners. The harsh environment of space, with its extreme temperatures and micrometeoroid threats, only adds to the complexity of this task.

As we push further into the final frontier, the challenges will only become more acute. However, with each new mission, we learn more about the risks and how to mitigate them. Through a combination of technological innovation, rigorous training, and a deep understanding of the human factor, we can continue to explore the cosmos while ensuring the safety of those who dare to venture into the unknown. *Write the correct letter in boxes 33-36 on your answer sheet.*

1. What is the primary source of galactic cosmic rays? A. The Sun B. Earth's magnetic field C. Outside our solar system D. The spacecraft itself
2. Which of the following is NOT a direct consequence of microgravity? A. Decreased bone density B. Muscle deterioration C. Increased risk of cancer D. Vision problems
3. The communication delay to Mars is a significant challenge because it: A. Makes it difficult to send and receive data. B. Prevents astronauts from communicating with their families. C. Requires the crew to be more self-reliant in emergencies. D. Increases the psychological stress of the mission.
4. The author uses the Challenger and Columbia disasters to illustrate: A. The dangers of radiation in space. B. The psychological challenges of space travel. C. The risk of equipment malfunction. D. The effects of microgravity on the human body.

Questions 37-40

Complete the notes below.

*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*

Write your answers in boxes 37-40 on your answer sheet.

Risks of Space Exploration

- **Environmental Threats:**
  - Radiation from the sun and **37** ________________.
  - Effects include increased cancer risk and cognitive impairment.
- **Physiological Challenges:**
  - Microgravity causes bone loss, muscle atrophy, and cardiovascular weakness.

- Astronauts may experience vision problems due to a **38** ________________ towards the head.

- **Psychological Hurdles:**
  - **39** ________________ and confinement can lead to mental health issues.
  - Maintaining crew morale is crucial for long-duration missions.
- **Operational Risks:**
  - Communication delays necessitate crew autonomy.
  - The risk of **40** ________________ is a constant concern.

LISTENING SECTION (40 questions)

SECTION 1 Questions 1-10

Complete the form below.

*Write **NO MORE THAN TWO WORDS AND/OR A NUMBER** for each answer.*

University of Extraterrestrial Studies - Course Inquiry

Caller's Name: John **1** ________________ **Course of Interest:** Introduction to **2** ________________ **Start Date: 3** ________________ **Course Code:** SE101 **Course Duration: 4** ________________ weeks **Course Fee:** £ **5** ________________ **Contact Number: 6** ________________ **Email Address:** john.p@**7** ________________*.com **How did you hear about us?** 8* ________________ **Specific Questions:**

- Are there any **9** ________________ for this course?
- Can I get a **10** ________________ of the course?

SECTION 2 Questions 11-20

Questions 11-15

*Choose the correct letter, **A, B** or **C**.*

1. The main purpose of the space museum is to: A. Showcase the history of space exploration. B. Inspire the next generation of scientists. C. Provide entertainment for the whole family.

2. The Apollo 11 command module is located in the: A. Main hall. B. East wing. C. West wing.
3. The museum's collection of meteorites is special because: A. It is the largest in the world. B. It contains a piece of the Moon. C. It includes a meteorite that fell in the local area.
4. The 4D cinema experience simulates a: A. Spacewalk. B. Rocket launch. C. Mission to Mars.
5. The museum is open every day except: A. Christmas Day. B. New Year's Day. C. Good Friday.

Questions 16-20

What feature is mentioned for each of the following exhibits?

*Choose **FIVE** answers from the box and write the correct letter, **A-G**, next to questions 16-20.*

Features

A. Interactive displays B. Original artifacts C. Life-sized models D. Virtual reality experience E. Recently added F. Designed for children G. Currently under renovation

Exhibits

1. The Space Race Gallery
2. The Mars Rover Yard
3. The International Space Station exhibit
4. The Future of Space Travel exhibit
5. The Children's Rocket Park

SECTION 3 Questions 21-30

*Choose the correct letter, **A, B** or **C**.*

1. What is the main topic of the discussion? A. The cost of space exploration. B. The ethics of colonizing other planets. C. The search for extraterrestrial life.

2. Sarah is concerned that colonizing Mars could: A. Be too expensive. B. Contaminate the Martian environment. C. Lead to conflicts between nations.
3. Tom believes that colonizing Mars is necessary to: A. Ensure the survival of the human race. B. Drive technological innovation. C. Find new resources.
4. Dr. Evans suggests that the debate about colonizing Mars is similar to debates about: A. The use of nuclear energy. B. The exploration of the deep sea. C. The development of artificial intelligence.
5. What is the concept of "planetary protection"? A. Protecting Earth from alien life. B. Protecting other planets from Earth life. C. Protecting astronauts from the space environment.
6. Sarah is worried that a Mars colony could become: A. A military base. B. A tourist destination. C. A breakaway civilization.
7. Tom argues that the benefits of a Mars colony outweigh the risks because: A. It will inspire future generations. B. It will lead to new scientific discoveries. C. It will create a new economy.
8. Dr. Evans encourages the students to think about: A. The long-term consequences of their actions. B. The historical context of exploration. C. The legal framework for space colonization.
9. What is the main point that Sarah makes about the resources on Mars? A. They should be preserved for future generations. B. They should be used to benefit all of humanity. C. They should be left untouched.
10. At the end of the discussion, the students agree that: A. Colonizing Mars is a bad idea. B. The ethical issues are complex and need more thought. C. The technological challenges are too great.

SECTION 4 Questions 31-40

Complete the notes below.

*Write **NO MORE THAN TWO WORDS** for each answer.*

The Search for Extraterrestrial Life

The Drake Equation

- A formula used to estimate the number of **31** ________________ in our galaxy.
- It considers factors such as the rate of star formation and the number of planets per star.

Methods of Detection

- **Radio telescopes:**
    - Used to listen for signals from other civilizations.
    - The SETI (Search for Extraterrestrial Intelligence) project is a famous example.
- **Space telescopes:**
    - Used to look for **32** ________________ around other stars.
    - The Kepler space telescope has discovered thousands of exoplanets.
- **Direct imaging:**
    - Taking pictures of exoplanets is extremely difficult due to the **33** ________________ of their host stars.
    - New technologies like starshades are being developed to overcome this problem.

Potential Habitats for Life

- **The habitable zone:**
    - The region around a star where liquid water can exist on a planet's surface.
    - Also known as the "**34** ________________ zone".
- **Ocean worlds:**
    - Moons like Europa (Jupiter) and Enceladus (Saturn) may have liquid water oceans beneath their icy surfaces.
    - These oceans could be heated by **35** ________________.

The Fermi Paradox

- The paradox is the contradiction between the high probability of extraterrestrial life and the lack of **36** ________________.
- **Possible explanations:**
    - Life is rare.

    - Intelligent life is self-destructive.
    - We are not listening correctly.
    - The “**37** ________________” theory: advanced civilizations are deliberately avoiding contact.

Recent Discoveries

- The discovery of **38** ________________ in the atmosphere of Venus.
- The detection of fast radio bursts (FRBs) from deep space.
- The analysis of **39** ________________ for signs of past or present life.

The Future of Astrobiology

- The James Webb Space Telescope will be able to analyze the atmospheres of exoplanets in great detail.
- Future missions will explore the ocean worlds of our solar system.
- The search for extraterrestrial life is a journey of discovery that will continue to expand our understanding of our place in the **40** ________________.

WRITING SECTION

WRITING TASK 1

You should spend about 20 minutes on this task.

The chart below shows the estimated cost of a mission to Mars, broken down by category.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

Write at least 150 words.

(A pie chart would be inserted here showing the following breakdown: Launch Vehicles: 40%, Crew & Support Systems: 25%, Research & Development: 20%, Mission Operations: 10%, Scientific Instruments: 5%)

WRITING TASK 2

You should spend about 40 minutes on this task.

Write about the following topic:

Some people believe that space exploration is a waste of money and that resources should be allocated to solving problems on Earth. Others argue that it is essential for the future of humanity.

Discuss both these views and give your own opinion.

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.

SPEAKING SECTION

PART 1: Introduction and interview (4-5 minutes)

- Have you ever been to a planetarium or a space museum?
- Are you interested in reading books or watching movies about space?
- Do you think it is important for countries to invest in space exploration?
- Would you like to travel to space one day?
- What do you think is the most interesting thing about space?

PART 2: Individual long turn (3-4 minutes)

Describe a movie or a book about space that you have seen or read.

You should say:

- what the movie or book was about
- what you liked or disliked about it
- what you learned from it

and explain why you would or would not recommend it to others.

PART 3: Two-way discussion (4-5 minutes)

- What are the advantages and disadvantages of space tourism?
- Do you think that the colonization of other planets is a realistic goal?

- What are the ethical implications of searching for and potentially finding extraterrestrial life?
- How has space exploration benefited life on Earth?
- What do you think the future of space exploration will be?

GRAMMAR SECTION (20 questions)

Questions 1-5: Error Correction

Identify the error in each sentence and correct it.

1. The news about the successful mission were broadcasted live on all major channels.
2. Despite of the risks, the astronauts were eager to begin their journey.
3. If I was an astronaut, I will travel to Mars.
4. The equipment used in space exploration is incredible complex and expensive.
5. Neither the astronauts nor the mission controller were aware of the problem.

Questions 6-10: Sentence Transformation

Complete the second sentence so that it has a similar meaning to the first sentence, using the word given. Do not change the word given. You must use between two and five words, including the word given.

1. The space agency has postponed the launch until next week. (PUT) The launch ________________ until next week.
2. It is possible that there is life on other planets. (COULD) There ________________ on other planets.
3. The astronauts found the mission more challenging than they expected. (AS) The mission was not ________________ the astronauts expected.
4. “I have never seen anything so beautiful,” said the astronaut. (EVER) The astronaut said that it was the most beautiful thing he ________________.
5. It’s a pity we can’t go to the planetarium. (WISH) I ________________ to the planetarium.

Questions 11-15: Fill in the Blanks

Complete the sentences with the correct form of the verb in brackets, or with an article or preposition.

1. By the time the next mission is launched, the team ________________ (train) for two years.
2. The International Space Station has been in orbit ________________ over 20 years.
3. The astronaut, along with his crewmates, ________________ (be) preparing for the spacewalk.
4. The discovery of water on Mars is ________________ most significant finding of the decade.
5. The rocket is scheduled to launch ________________ dawn.

Questions 16-20: Word Formation

Use the word in capitals to form a word that fits in the gap.

1. The ________________ of the new rocket was a major milestone for the space agency. (DEVELOP)
2. The astronauts had to undergo rigorous ________________ training. (PSYCHOLOGY)
3. The data from the probe was ________________ to the scientists. (VALUE)
4. The mission was a remarkable ________________ of engineering. (ACHIEVE)
5. The ________________ of a new planet was announced at the press conference. (DISCOVER)

LISTENING SCRIPTS

SECTION 1

Clerk: Good morning, University of Extraterrestrial Studies. How can I help you?

John: Hello, I'm calling to inquire about a course.

Clerk: Certainly. Which course are you interested in?

John: It's the "Introduction to Space Exploration" course.

Clerk: Ah, yes. An excellent choice. Let me just bring up the details. Right, here we are. The course starts next month, on **September 15th**.

John: Great. And what's the course code?

Clerk: It's SE101.

John: And how long is the course?

Clerk: It's a **12-week** course, with one lecture per week.

John: Perfect. And the fee?

Clerk: The course fee is **£350**.

John: Okay. Can I have your name, please?

Clerk: My name is John **Peterson**.

John: And can I take your contact number and email address?

Clerk: Yes, my number is **07700 900123**, and my email is john.p@**webmail**.com.

John: Thank you. How did you hear about us, Mr. Peterson?

Clerk: I saw an advertisement in a **magazine**.

John: I see. Do you have any specific questions about the course?

Clerk: Yes, I was wondering if there are any **prerequisites** for this course?

John: No, it's an introductory course, so no prior knowledge is required. And can I get a **syllabus** of the course?

Clerk: Of course. I can email that to you right away.

John: That would be great. Thank you for your help.

Clerk: You're welcome. We look forward to seeing you in September.

SECTION 2

Welcome, everyone, to the National Space Museum. My name is David, and I'll be your guide for today's tour. The main purpose of our museum is not just to showcase the history of space exploration, but also to inspire the next generation of scientists and explorers. We have a wide range of exhibits that are both educational and entertaining for the whole family.

We'll begin our tour in the main hall, where you can see a full-scale model of the Saturn V rocket. This is the rocket that took the Apollo astronauts to the Moon. In the east wing, you'll find our collection of spacecraft, including the actual Apollo 11 command module, which is on loan from the Smithsonian. And in the west wing, we have our meteorite collection. It's particularly special because it includes a meteorite that fell right here in the local area just last year.

After the tour, I highly recommend our 4D cinema experience. It's a thrilling simulation of a rocket launch that will make you feel like you're really blasting off into space. The museum is open every day from 10 am to 6 pm, except for Christmas Day.

Now, let's talk about some of our most popular exhibits. The Space Race Gallery, which is on the first floor, features original artifacts from the American and Soviet space programs. You can see real spacesuits, mission control consoles, and even a piece of the Berlin Wall. The Mars Rover Yard, on the ground floor, has life-sized models of the Spirit, Opportunity, and Curiosity rovers. You can even try your hand at driving a mini-rover yourself. The International Space Station exhibit, also on the ground floor, has been recently added and features a walk-through model of the station. The Future of Space Travel exhibit, on the second floor, is a must-see. It has some amazing interactive displays that let you design your own spacecraft and plan a mission to Mars. Finally, for our younger visitors, we have the Children's Rocket Park, which is an outdoor play area designed for children with lots of fun, space-themed activities.

SECTION 3

Dr. Evans: So, today we're going to be discussing the ethics of colonizing other planets, specifically Mars. Sarah, would you like to start?

Sarah: Sure, Dr. Evans. I think it's a really interesting topic. On the one hand, the idea of becoming a multi-planetary species is exciting. But on the other hand, I'm concerned about the potential for contamination. If there is microbial life on Mars, we could inadvertently destroy it by introducing Earth-based organisms.

Tom: I see your point, Sarah, but I think the survival of the human race is more important. If something catastrophic were to happen on Earth, a colony on Mars could be our only hope. It's a sort of insurance policy for humanity.

Dr. Evans: That's a valid point, Tom. This debate is not dissimilar to the ones we've had about the exploration of the deep sea. There's always a tension between the desire to explore and the need to protect pristine environments. This is where the concept of "planetary protection" comes in. It's a set of principles designed to prevent the biological contamination of both the target celestial body and the Earth.

Sarah: I'm also worried about the political implications. Who would own Mars? Who would govern the colony? I could see it becoming a source of conflict between nations, or even a breakaway civilization that doesn't feel bound by the laws of Earth.

Tom: I think you're being a bit pessimistic, Sarah. I see it as an opportunity for a fresh start, a chance to create a new society that is free from the problems of the old world. The scientific discoveries that would come from a Mars colony would be immense. It would be a huge inspiration for future generations.

Dr. Evans: These are all important considerations. I would encourage you both to think about the long-term consequences of our actions. It's not just about the technology to get to Mars, but also about the legal and ethical framework that would govern our presence there.

Sarah: And what about the resources on Mars? Should they be exploited for the benefit of a few, or should they be preserved for all of humanity? I think they should be left untouched.

Tom: But if we can use those resources to sustain a colony, then I think we have a right to do so. It's no different from using the resources on Earth.

Dr. Evans: As you can see, the ethical issues are complex and there are no easy answers. It's something that we as a society need to discuss and debate as we move forward with our plans for space exploration.

SECTION 4

Good morning, everyone. Today, we're going to be talking about one of the most profound questions in science: are we alone in the universe? The search for extraterrestrial life, or astrobiology, is a field that has fascinated scientists and the public alike for decades.

One of the most famous tools in this search is the Drake Equation. Developed by astronomer Frank Drake in 1961, it's a formula used to estimate the number of active, communicative extraterrestrial civilizations in our galaxy. It's a probabilistic argument that considers factors like the rate of star formation, the fraction of stars with planets, and the fraction of planets that could potentially support life.

So, how do we actually search for this life? One of the primary methods is through the use of radio telescopes. These giant dishes scan the skies, listening for signals that could be of intelligent origin. The SETI project is a well-known example of this. Another method is to use space telescopes to look for biosignatures in the atmospheres of exoplanets. The Kepler space telescope, for example, has been incredibly successful, discovering thousands of planets orbiting other stars. Direct imaging of exoplanets is another promising technique, but it's incredibly difficult due to the overwhelming glare of their host stars. New technologies, like starshades, are being developed to block out the starlight and allow us to see the planets directly.

When we're looking for life, we tend to focus on places that have the potential for liquid water. The habitable zone, or "Goldilocks zone," is the region around a star where the temperature is just right for liquid water to exist on a planet's surface. But life might also exist in other places. Ocean worlds, like Jupiter's moon Europa and Saturn's moon Enceladus, are thought to have vast liquid water oceans beneath their icy shells. These oceans could be kept warm by tidal heating, creating a potential habitat for life.

This brings us to the Fermi Paradox. If the universe is teeming with life, why haven't we found any evidence of it? This is the contradiction between the high probability of extraterrestrial life and the lack of contact. There are many possible explanations. Perhaps life is incredibly rare. Perhaps intelligent life is inherently self-destructive. Or perhaps we're just not listening correctly. One intriguing idea is the "zoo hypothesis," which suggests that advanced civilizations are aware of us but are deliberately avoiding contact, treating us like animals in a zoo.

Despite the lack of a definitive discovery, the search continues. Recent discoveries, like the detection of phosphine in the atmosphere of Venus and the analysis of Martian meteorites for signs of life, have kept the field buzzing with excitement. The next generation of telescopes, like the James Webb Space Telescope, will allow us to study exoplanet atmospheres in unprecedented detail. The search for extraterrestrial life is a journey that will undoubtedly continue to expand our understanding of our place in the cosmos.

ANSWER KEY

READING SECTION

Passage 1

1. TRUE
2. FALSE
3. FALSE
4. TRUE
5. TRUE
6. FALSE
7. C
8. C
9. C
10. C
11. space station
12. Space Shuttle
13. International Space Station

Passage 2

1. v
2. iii
3. iv
4. vii
5. i
6. vi
7. B
8. A
9. B

10. B
11. reusable rocket technology
12. radiation
13. in-situ resource utilization

Passage 3

1. YES
2. NO
3. NOT GIVEN
4. YES
5. NO
6. NOT GIVEN
7. C
8. C
9. C
10. C
11. galactic cosmic rays
12. fluid shift
13. Isolation
14. equipment failure

LISTENING SECTION

1. Peterson
2. Space Exploration
3. September 15th
4. 12
5. 350
6. 07700 900123
7. webmail

8. magazine
9. prerequisites
10. syllabus
11. B
12. B
13. C
14. B
15. A
16. B
17. C
18. E
19. A
20. F
21. B
22. B
23. A
24. B
25. B
26. C
27. B
28. A
29. B
30. B
31. extraterrestrial civilizations
32. biosignatures
33. glare
34. Goldilocks
35. tidal heating
36. evidence

37. zoo hypothesis
38. phosphine
39. Martian meteorites
40. cosmos

GRAMMAR SECTION

1. The news about the successful mission **was** broadcast live on all major channels.
2. **Despite** the risks, the astronauts were eager to begin their journey.
3. If I **were** an astronaut, I **would** travel to Mars.
4. The equipment used in space exploration is **incredibly** complex and expensive.
5. Neither the astronauts nor the mission controller **was** aware of the problem.
6. has been put off
7. could be life
8. as easy as
9. had ever seen
10. wish we could go
11. will have been training
12. for
13. is
14. the
15. at
16. development
17. psychological
18. invaluable
19. achievement
20. discovery

TUTOR GUIDE

WRITING TASK 1: MODEL ANSWER

The provided pie chart illustrates the estimated cost breakdown for a mission to Mars, divided into five main categories. The most significant portion of the budget is allocated to Launch Vehicles, which accounts for 40% of the total expenditure.

The second largest category is Crew & Support Systems, which comprises a quarter of the total cost. This is followed by Research & Development, which is responsible for 20% of the budget. Mission Operations and Scientific Instruments make up the smallest portions of the expenditure, at 10% and 5% respectively.

Overall, the chart indicates that the majority of the cost of a Mars mission is associated with the hardware and personnel required to get the mission off the ground and support the crew. The actual scientific research and operational aspects of the mission account for a much smaller fraction of the total budget. The combined cost of Launch Vehicles and Crew & Support Systems makes up nearly two-thirds of the total mission cost.

WRITING TASK 2: MODEL ESSAY (BAND 9)

The question of whether to invest in space exploration or to focus on terrestrial problems is a complex and often contentious issue. While some argue that the vast sums of money spent on space missions could be better used to address pressing issues on Earth, others maintain that space exploration is a vital investment in the future of humanity.

On the one hand, the argument that we should prioritize our own planet is a powerful one. In a world where poverty, hunger, and disease are still rampant, it can be difficult to justify the billions of dollars spent on sending rockets to other planets. The opportunity cost of space exploration is immense; the same resources could be used to fund schools, hospitals, and infrastructure projects. Furthermore, there is a moral imperative to care for our own planet before we venture to others. The environmental challenges we face, such as climate change and pollution, require our immediate attention and resources.

On the other hand, the proponents of space exploration argue that it is not a luxury, but a necessity. They point to the numerous technological advancements that have been born out of the space program, from GPS and satellite communication to medical imaging and water purification systems. These innovations have had a profound and lasting impact on our daily lives. Moreover, space exploration is a powerful driver of scientific discovery, expanding our understanding of the universe and our place within it. The long-term survival of humanity may also depend on our ability to become a multi-planetary species, capable of weathering existential threats such as asteroid impacts or global pandemics.

In my opinion, while the need to address Earth's problems is undeniable, it would be a grave mistake to abandon space exploration. The two are not mutually exclusive; in fact, they are often intertwined. The technology developed for space can be used to solve problems on Earth, and the perspective gained from looking back at our planet from space can inspire us to take better care of it. The key is to find a balance, to continue to explore the final frontier while also redoubling our efforts to create a better world for all.

SPEAKING PART 2: SAMPLE RESPONSE

One of my favorite movies about space is "The Martian," based on the book by Andy Weir. It's a story about an astronaut named Mark Watney who is presumed dead and left behind on Mars after a fierce storm. The movie follows his struggle to survive on the hostile planet and the efforts of NASA to bring him home.

What I really liked about the movie was its scientific accuracy and its optimistic tone. It's a story about human ingenuity and the power of science to solve problems. The main character, Mark Watney, is a botanist, and he uses his knowledge to grow potatoes on Mars, which is just incredible. The movie does a great job of explaining the science behind his survival without being overly technical.

I also found the movie to be very inspiring. It's a story about not giving up, even in the face of overwhelming odds. The international cooperation that is shown in the movie, with different countries coming together to rescue one man, is a powerful message of hope.

I learned a lot from the movie, not just about science, but also about the importance of perseverance and teamwork. I would definitely recommend it to anyone who is interested in space, science, or just a good story about survival. It's a movie that will leave you feeling both entertained and inspired.

KEY VOCABULARY

1. **Cosmos:** The universe seen as a well-ordered whole.
2. **Ballistic missile:** A missile that is initially powered and guided but then follows a ballistic trajectory to its target.
3. **Space Race:** The competition between the United States and the Soviet Union for supremacy in space exploration.
4. **Artificial satellite:** An artificial body placed in orbit around the earth or moon or another planet in order to collect information or for communication.
5. **Cosmonaut:** A Russian astronaut.
6. **Lunar:** Of, determined by, or resembling the moon.
7. **Unmanned probe:** A spacecraft that travels through space without a crew, designed to explore and gather scientific data.
8. **Space Shuttle:** A reusable spacecraft for transporting people and cargo between earth and space.
9. **International Space Station (ISS):** A large spacecraft in orbit around Earth. It serves as a home where crews of astronauts and cosmonauts live.
10. **Commercial enterprise:** A business or company that is run for profit.
11. **Reusable rocket:** A rocket that can be used more than once, reducing the cost of space launches.
12. **Sub-orbital:** A trajectory in which a spacecraft reaches outer space but does not achieve a stable orbit.
13. **Colonization:** The action or process of settling among and establishing control over the indigenous people of an area.
14. **In-situ resource utilization (ISRU):** The practice of collecting, processing, storing and using material found or manufactured on other astronomical objects.
15. **Microgravity:** The condition of being weightless.
16. **Galactic cosmic rays (GCRs):** High-energy particles that originate from outside our solar system. 1s7. **Isolation and confinement:** The state of being separated from other people and confined to a small space.

17. **Extraterrestrial:** Of or from outside the earth or its atmosphere.
18. **Biosignature:** A substance that provides scientific evidence of past or present life.
19. **Fermi Paradox:** The apparent contradiction between the high probability of the existence of extraterrestrial civilizations and the lack of evidence for, or contact with, such civilizations.