

على المترشح أن يختار أحد الموضوعين الآتيين:  
الموضوع الأول:

**Part One: Reading**

**(15 points)**

**A/ Comprehension**

**(08 points)**

**Read the text carefully and do the activities.**

With each technological leap and scientific breakthrough, we inch closer to unravelling the mysteries of the cosmos, guided by the ingenuity of AI. The integration of AI technologies in space operations has revolutionised the processes of mission planning and spacecraft design. Through advanced algorithms and data analysis, AI helps optimise trajectories, minimise fuel consumption, and enhance mission efficiency.

By analysing vast amounts of data, AI helps scientists and engineers design efficient space missions. AI-powered robotics probes and autonomous rovers extend humanity's reach across celestial bodies by venturing into uncharted territories. It enables robotics probes to navigate through challenging environments, collect data, and even make on-the-fly adjustments to their missions.

AI enhances the capabilities of space telescopes and satellite systems, enabling them to capture and analyse vast amounts of astronomical data with unprecedented precision. Yet, optimising AI algorithms to sift through this data efficiently poses a formidable challenge, requiring continuous refinement and adaptation to extract meaningful insights from the cosmos.

In a fast-approaching future of space exploration, AI will highly impact the industry from launch to constellation control and satellite performance analysis. It is a key enabler for advancing our knowledge about the universe. As AI can help analyse the signals from telescopes and identify patterns and anomalies that indicate the presence of exoplanets, it will help humanity discover new planets beyond our solar system and determine their potential habitability.

*Adapted from: <https://www.godigit.com/guides/space-exploration>*

**1. Circle the letter that corresponds to the right answer.**

- The text is about:

- a) The history of early space exploration.
- b) The role of AI in modern space missions.
- c) The dangers of using robots in the cosmos.

**2. Put the following ideas in the order they appear in the text.**

- a) AI assists in identifying exoplanets and their habitability.
- b) Autonomous rovers explore territories humans cannot reach.
- c) AI optimizes fuel consumption and spacecraft trajectories.
- d) Data analysis from telescopes remains a significant challenge.

**3. Answer the following questions according to the text.**

- a) What is the benefit of implementing AI in space operations?
- b) Why are autonomous rovers essential for exploring celestial bodies?
- c) What is the main difficulty mentioned regarding astronomical data?
- d) Is this technology essential for increasing our understanding of the universe?

**4. Who or what do the underlined words refer to in the text?**

a) It (§2): .....

b) them (§3): .....

## B/ Text Exploration

(07 points)

### 1. Find in the text words whose definitions follow:

- To make something as effective or perfect as possible. (§1)
- Never done or explored before; completely new. (§2)
- Instructions or rules to solve a problem or perform a task by a computer. (§3)

### 2. Complete the following chart as shown in the example: (1.5 pts)

|             | Verb         | Noun        | Adjective  |
|-------------|--------------|-------------|------------|
| Exempl<br>e | To integrate | Integration | Integrated |
|             | To explore   | .....       | .....      |
|             | .....        | Discovery   | .....      |
|             | .....        | .....       | Analytical |

### 3. Combine the following pairs of sentences using the connectors provided in brackets.

- Traditional telescopes rely on human analysis. AI systems process cosmic data instantaneously. (**unlike**)
- Space agencies invest in AI. They want to enhance mission efficiency. (**in order to**)
- Space missions can fail. AI is properly used. (**unless**)
- AI systems are powerful. AI systems still face technical challenges. (**despite**)

### 4. Fill in the gaps with only four words from the list:

*process - achievable - astronauts - satellites- technology*

AI is revolutionizing our cosmic perspective and transforming the way we look at the universe.

Instead of relying solely on humans, ....(1)..... equipped with onboard AI now can now .....(2)..... vast datasets much faster. This transformative .....(3)..... accelerates the search for life on other planets, turning the once-impossible into .....(4)..... reality.

## Part Two: Written Expression (05 points)

### Choose ONE of the following topics:

**Topic One:** You are a member of **Science and Space School Club**. You noticed that many of your peers underestimate the role of technology in exploring the universe. Write an **opinion article** of about 100 to 120 words for your school magazine to convince them that using robots is more beneficial than sending humans into space.

### Use the following notes to support your argument:

- Cost-effective (no need for food, oxygen, or water).
- Can withstand extreme temperatures and radiation.
- No risk to human life in case of mission failure.
- Can stay in space for many years.

**Topic Two:** You recently watched a documentary about the hidden psychology of modern advertising. You noticed how advertisements on social media are specifically designed to activate some emotions and influence what people buy. Write an article of about 100 to 120 words for your school magazine to explain how ads can change a person's mood and feelings.

انتهى الموضوع

| عناصر الإجابة |         | AI in Space Exploration                                                                                                                                                                          |             | عناصر الإجابة: الموضوع الثاني |                               |
|---------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------|-------------------------------|
| مجموع         | (مجزأة) |                                                                                                                                                                                                  |             |                               |                               |
| ع             |         |                                                                                                                                                                                                  |             |                               |                               |
| 1             | (8pts)  | A/ Comprehension                                                                                                                                                                                 |             |                               |                               |
| 1             | 1       | 1. MCQ                                                                                                                                                                                           |             |                               |                               |
| 2             | 0.5X4   | The text is about : (b) The role of AI in modern space missions                                                                                                                                  |             |                               |                               |
| 4             |         | 2. Ordering Ideas                                                                                                                                                                                |             |                               |                               |
|               |         | C B D A                                                                                                                                                                                          |             |                               |                               |
|               |         | 3. Answering questions:                                                                                                                                                                          |             |                               |                               |
|               |         | a) It revolutionizes mission planning and spacecraft design, optimizes trajectories, minimizes fuel consumption, and enhances mission efficiency.                                                |             |                               |                               |
|               |         | b) They are essential because they can venture into uncharted territories, navigate challenging environments, and make on-the-fly adjustments to their missions.                                 |             |                               |                               |
|               | 1X4     | c) The main difficulty is optimizing AI algorithms to sift through vast amounts of data efficiently and extract meaningful insights.                                                             |             |                               |                               |
|               |         | d) Yes, it is. The text describes it as a "key enabler" for advancing our knowledge about the universe.                                                                                          |             |                               |                               |
| 1             |         | 4. Word Reference                                                                                                                                                                                |             |                               |                               |
|               | 0.5X2   | a) It (§2): AI (Artificial Intelligence)                                                                                                                                                         |             |                               |                               |
|               |         | b) them (§3): Space telescopes and satellite systems                                                                                                                                             |             |                               |                               |
| 1.5           | (7pts)  | B/ Text Exploration                                                                                                                                                                              |             |                               |                               |
| 1.5           | 0.5X3   | 1. Lexis:                                                                                                                                                                                        |             |                               |                               |
|               |         | a) Optimize (§1) b) Uncharted (§2) c) Algorithms (§3)                                                                                                                                            |             |                               |                               |
| 1.5           | 0.5X3   | 2. Morphology                                                                                                                                                                                    |             |                               |                               |
|               |         | Verb                                                                                                                                                                                             | Noun        | Adjective                     |                               |
|               |         | ////////                                                                                                                                                                                         | Exploration | Explored / Exploratory        |                               |
|               |         | To discover                                                                                                                                                                                      | ////////    | Discovered                    |                               |
|               |         | To analyze                                                                                                                                                                                       | Analysis    | //////////                    |                               |
| 2             |         | 3. Syntax :                                                                                                                                                                                      |             |                               |                               |
|               | 0.5X4   | a) Unlike traditional telescopes that rely on human analysis, AI systems process cosmic data instantaneously. OR: AI systems process cosmic data instantaneously, unlike traditional telescopes. |             |                               |                               |
|               |         | b) Space agencies invest in AI in order to enhance mission efficiency.                                                                                                                           |             |                               |                               |
|               |         | c) Space missions can fail unless AI is properly used.                                                                                                                                           |             |                               |                               |
| 2             |         | d) Despite being powerful, AI systems still face technical challenges. OR: AI systems face technical challenges despite their power.                                                             |             |                               |                               |
|               | 0.5X4   | 4. Discourse: Gap fill                                                                                                                                                                           |             |                               |                               |
|               |         | (1) satellites (2) process (3) technology (4) achievable .                                                                                                                                       |             |                               |                               |
| 5 pts         |         | Part two : Written Expression                                                                                                                                                                    |             |                               |                               |
|               |         | Criteria                                                                                                                                                                                         | Relevance   | Semantic coherence            | Correct use of English        |
|               |         |                                                                                                                                                                                                  |             |                               | Excellence vocab & creativity |
|               |         | Common Streams                                                                                                                                                                                   | 1           | 1                             | 2                             |
|               |         |                                                                                                                                                                                                  |             |                               | 1                             |
|               |         |                                                                                                                                                                                                  |             |                               | 5                             |