

## Variant 1

### Part 1 Academic English in Use (10 minutes)

#### Choose the right variant (2 points for each right answer)

1. The police have not yet been able to **find out/establish** the cause of death for a man who was found floating in the river.
2. The country covers a total **area/space** of over 1,725 square kilometers.
3. The world's **superior/major** rainforests are located in South and Central America, and in South-east Asia.
4. Jefferson has a largely defensive **role/duty** to play on the team, and is not known for scoring.
5. We need an accountant to **consider/interpret** our financial statements.
6. Very young children **formulate/conceptualize** ideas of depth, height and size in different ways from adults.
7. We often make **assumptions/conclusions** about people from foreign countries based on a very limited knowledge of their culture.
8. Whether or not learning **occurs/takes place** depends on a variety of factors, including student motivation, effectiveness of presentation of materials, etc.
9. Much **evidence/witness** exists suggesting that the seafloors are constantly moving and continually being created and destroyed.
10. To understand our earth and the **phenomena/processes** which operate upon it, one must attempt to comprehend time spans of millions of years.
11. A report **made/issued** by the International Labour Organization in 1996 said that Asia has the greatest number of children working, at 45 million.
12. **Achieving/receiving** valid results is a major goal of all research.
13. World chess champion Gary Kasparov was recently beaten by a machine which was able to **count/compute** its moves almost instantly.
14. Teachers in the program are **evaluated/estimated** by the students at the end of each session.
15. We did an informal **research/survey** in the class, and found that most people wanted to have the party this Friday.
16. New research indicates that scientists (**discovered/have discovered/had discovered**) a potential cure for some forms of dementia.
17. You (**needn't worry/needn't worrying/needn't to worry**) about protein or low-specific gravity affecting the result.
18. If you had measured the results accurately we (**could speak/could spoke/could have spoken**) about their validity in the research report presented last Friday.
19. Please stop (**to interrupt/interrupting/being interrupted**) the speaker. Let him finish his speech.
20. The final bill for the experiments will run (**up/into/for**) thousands of dollars.

## Part 2. Academic Reading (50 minutes)

### Reading Passage 1 (3 points for each right answer) (25 minutes)

The text has six paragraphs, A-F. Choose the correct heading for each paragraph from the list of headings (i-ix) below.

#### List of headings

- i Tackling the issue using a different approach
- ii A significant improvement on last time
- iii How robots can save human lives
- iv Examples of robots at work
- v Not what it seemed to be
- vi Why timescales are impossible to predict
- vii The reason why robots rarely move
- viii Following the pattern of earlier development
- ix The ethical issues of robotics

### Reading Passage 1

*They are already here – driving cars, vacuuming carpets and feeding hospital patients. They may not be walking, talking, human-like sentient beings, but they are clever and a little creepy.*

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**A** At first sight it looked like a typical suburban accident. A Land Rover approached a Chevy Tahoe estate car that had stopped at a kerb; the Land Rover pulled out and tried to pass the Tahoe just as it started off again. There was a crack of fenders and the sound of paintwork being scraped, the kind of minor mishap that occurs on roads thousands of times every day. Normally drivers get out, gesticulate, exchange insurance details and then drive off. But not on this occasion. No one got out of the cars for the simple reason that they had no humans inside them; the Tahoe and Land Rover were being controlled by computers competing in November's DARPA (the U.S. Defence Advanced Research Projects Agency) Urban Challenge.

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**B** The idea that machines could perform to such standards is startling. Driving is a complex task that takes humans a long time to perfect. Yet here, each car had its on-board computer loaded with a digital map and route plans, and was instructed to negotiate busy roads; differentiate between pedestrians and stationary objects; determine whether other vehicles were parked or moving off; and handle various parking manoeuvres, which robots turn out to be unexpectedly adept at. Even more striking was the fact that the collision between the robot Land Rover, built by researchers at the Massachusetts Institute of Technology, and the Tahoe, fitted out by Cornell University Artificial Intelligence (AI) experts, was the only scrape in the entire competition. Yet only three years earlier, at DARPA's previous driverless car race, every robot competitor – directed to navigate across a stretch of open desert – either crashed or seized up before getting near the finishing line.

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**C** It is a remarkable transition that has clear implications for the car of the future. More importantly, it demonstrates how robotics sciences and Artificial Intelligence have progressed in the past few years – a point stressed by Bill Gates, the Microsoft boss who is a convert to these causes. ‘The robotics industry is developing in much the same way the computer business did 30 years ago,’ he argues. As he points out, electronics companies make toys that mimic pets and children with increasing sophistication. ‘I can envision a future in which robotic devices will become a nearly ubiquitous part of our day-to-day lives,’ says Gates. ‘We may be on the verge of a new era, when the PC will get up off the desktop and allow us to see, hear, touch and manipulate objects in places where we are not physically present.

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**D** What is the potential for the robots and computers in the near future? ‘The fact is we still have a way to go before real robots catch up with their science fiction counterparts,’ Gates says. So what are the stumbling blocks? One key difficulty is getting robots to know their place. This has nothing to do with class or etiquette but concerns the simple issue of positioning. Humans orient themselves with other objects in a room very easily. Robots find the tasks almost impossible. ‘Even something as simple as telling the difference between an open door and a window can be tricky for a robot,’ says Gates. This has, until recently, reduced robots to fairly static and cumbersome roles.

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**E** For a long time, researchers tried to get round the problem by attempting to re-create the visual processing that goes on in the human cortex. However, that challenge has proved to be singularly exacting and complex. So scientists have turned to simpler alternatives: ‘We have become far more pragmatic in our work,’ says Nello Cristianini, Professor of Artificial Intelligence at the University of Bristol in England and associate editor of the *Journal of Artificial Intelligence Research*. ‘We are no longer trying to re-create human functions. Instead, we are looking for simpler solutions with basic electronic sensors, for example. ‘ This approach is exemplified by vacuuming robots such as the Electrolux Trilobite. The Trilobite scuttles around homes emitting ultrasound signals to create maps of rooms, which are remembered for future cleaning. Technology like this is now changing the face of robotics, says philosopher Ron Chrisley, director of the Centre for Research in Cognitive Science at the University of Sussex in England.

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**F** Last year, a new Hong Kong restaurant, Robot Kitchen, opened with a couple of sensor laden humanoid machines directing customers to their seats. Each possesses a touch-screen on which orders can be keyed in. the robot then returns with the correct dishes. In Japan, University of Tokyo researchers recently unveiled a kitchen ‘android’ that could wash dishes, pour tea and make a few limited meals. The ultimate aim is to provide robot home helpers for the sick and the elderly, a key concern in a country like Japan where 22 per cent of the population is 65 or older. Over US\$ 1 billion a year is spent on research into robots that will be able to care for the elderly. ‘Robots first learn basic competence – how to move around a house without bumping into things. Then we can think about teaching them how to interact with humans’, Chrisley said. Machines such as these take researchers into the field of socialized robotics: how to make robots act in a way that does not scare or offend individuals. ‘We need to study how robots should approach people, how they should appear. That is going to be a key area for future research’, says Chrisley.

**Match each statement with the correct person, A, B, or C. NB You may use any letter more than once**

**A. Bill Gates**

**B. Nello Christianini**

**C. Ron Chrisley**

27. An important concern for scientists is to ensure that robots do not seem frightening.

28. We have stopped trying to enable robots to perceive objects as human do.

29. It will take considerable time for modern robots to match the ones we have created in films and books.

30. We need to enable robots to move freely before we think about trying to communicate with them.

### **Reading Passage 2 (3 points for each right answer) (25 minutes)**

1 The deserts, which already occupy approximately a fourth of the Earth's land surface, have in recent decades been increasing at an alarming pace. The expansion of desertlike conditions into areas where they did not previously exist is called desertification. It has been estimated that an additional one-fourth of the Earth's land surface is threatened by this process.

**31. The word threatened in paragraph 1 is closest in meaning to:**

- a) restricted
- b) endangered
- c) prevented
- d) rejected

2 Desertification is accomplished primarily through the loss of stabilizing natural vegetation and the subsequent accelerated erosion of the soil by wind and water. In some cases the loose soil is blown completely away, leaving a stony surface. In other cases, the finer particles may be removed, while the sand-sized particles are accumulated to form mobile hills or ridges of sand.

3 Even in the areas that retain a soil cover, the reduction of vegetation typically results in the loss of the soil's ability to absorb substantial quantities of water. The impact of raindrops on the loose soil tends to transfer fine clay particles into the tiniest soil spaces, sealing them and producing a surface that allows very little water penetration. Water absorption is greatly reduced, consequently runoff is increased, resulting in accelerated erosion rates. The gradual drying of the soil caused by its diminished ability to absorb water results in the further loss of vegetation, so that a cycle of progressive surface deterioration is established.

**32. According to paragraph 3, the loss of natural vegetation has which of the following consequences for soil?**

- a) Increased stony content
- b) Reduced water absorption
- c) Increased numbers of spaces in the soil

d) Reduced water runoff

4 In some regions, the increase in desert areas is occurring largely as the result of a trend toward drier climatic conditions. Continued gradual global warming has produced an increase in aridity for some areas over the past few thousand years. The process may be accelerated in subsequent decades if global warming resulting from air pollution seriously increases.

5 there is little doubt, however, that desertification in most areas results in primarily from human activities rather than natural processes. The semiarid lands bordering the deserts exist in a delicate ecological balance and are limited in their potential to adjust to increased environmental pressures. Expanding populations are subjecting the land to increasing pressures to provide them with food and fuel. In wet periods, the land may be able to respond to these stresses. During the dry periods that are common phenomena along the desert margins, though, the pressure on the land is often far in excess of its diminished capacity, and desertification results.

**33. The word delicate in paragraph 5 is closest in meaning to:**

- a) fragile
- b) predictable
- c) complex
- d) valuable

**34. According to paragraph 5, in dry periods, border areas have difficulty**

- a) adjusting to stresses created by settlement
- b) retaining their fertility after desertification
- c) providing water for irrigating crops
- d) attracting populations in search of food and fuel

6 Four specific activities have been identified as major contributors to the desertification processes: overcultivation, overgrazing, firewood gathering, and overirrigation. The cultivation of crops has expanded into progressively drier regions as population densities have grown. These regions are especially likely to have periods of severe dryness, so that crop failures are common. Since the raising of most crops necessitates the prior removal of the natural vegetation, crop failures leave extensive tracts of land devoid of a plant cover and susceptible to wind and water erosion.

**35. The word progressively in paragraph 6 is closest in meaning to:**

- a) openly
- b) impressively
- c) objectively
- d) increasingly

**36. The phrase devoid of in paragraph 6 is closest in meaning to:**

- a) consisting of
- b) hidden by
- c) except for
- d) lacking in

**37. According to paragraph 6, which of the following is often associated with raising crops:**

- a) lack of proper irrigation techniques
- b) failure to plant crops suited for a particular area

- c) removal of original vegetation
- d) excessive use of animal dried waste

7 The raising of livestock is a major economic activity in semiarid lands, where grasses are generally the dominant type of natural vegetation. The consequences of an excessive number of livestock grazing in an area are the reduction of the vegetation cover and the trampling and the pulverization of the soil. This is usually followed by the drying of the soil and accelerated erosion.

8 Firewood is the chief fuel used for cooking and heating in many countries. The increased pressures of expanding populations have led to the removal of woody plants so that cities and towns are surrounded by large areas completely lacking in trees and shrubs. The increasing use of dried animal waste as a substitute fuel has also hurt the soil because this valuable soil conditioner and source of plant nutrients is no longer being returned to the land.

9 The final major human cause of desertification is soil salinization resulting from overirrigation. Excess water from irrigation sinks down into the water table. If no drainage system exists, the water table rises, bringing dissolved salts to the surface. The water evaporates and the salts are left behind, creating a white crustal layer that prevents air and water from reaching the underlying soil.

**38. According to paragraph 9, the ground's absorption of excess water is a factor in desertification because it can:**

- a) interfere with the irrigation of land
- b) limit the evaporation of water
- c) require more absorption of air by the soil
- d) bring salts to the surface

10 The extreme seriousness of desertification results from the vast areas of land and the tremendous numbers of people affected, as well as from the great difficulty of reversing or even slowing the process. Once the soil has been removed by erosion, only the passage of centuries or millennia will enable new soil to form. In areas where considerable soil still remains, though, a rigorously enforced program of land protection and cover crop planting may make it possible to reverse the present deterioration of the surface.

**39. It can be inferred from paragraph 10 that the author most likely believes which of the following about the future of desertification?**

- a) Governments will act quickly to control further desertification.
- b) The factors influencing desertification occur in cycles and will change in the future.
- c) Desertification will continue to increase.
- d) Desertification will soon occur in all areas of the world.

**40. All of the following are mentioned in Reading Passage 2 as contributing to the desertification EXCEPT:**

- a) soil erosion
- b) global warming
- c) insufficient irrigation
- d) the raising of livestock