Reading Passage 1

*You should spend about 20 minutes on **Questions 1 – 12**, which are based on Reading Passage 1.*

Engineering a solution to climate change

A. Looking at the rate of climate change and the disastrous effects it is having on the world, scientists are concerned that we are acting too slowly. Many are now looking to geoengineering — large-scale human interventions to change the world's climate — to counteract global warming. The schemes range from the mundane to science fiction but all come from the same impulse: if we don't do something now, it may be too late to do anything.

B. Climate change is now so rapid that, in the very near future, the Arctic will be ice-free during winter as less ice forms during winters and more melts in summer. Scientists say that tackling climate change isn't a problem we need to deal with in 10 or 20 years' time; we need to look at radical solutions now. A study has shown that the technologies to produce these geoengineering projects already exists and could be in place for around $5 billion a year. This is a bargain when compared with the cost of reducing carbon dioxide emissions, a major greenhouse gas: that figure stands at somewhere between $200 and $2,000 billion.

C. So what exactly are scientists planning to do to deal with global warming in the short term? Among the main schemes are shielding the earth from the sun's rays either at ground or atmospheric level, or capturing the carbon produced by industry and sinking it back into the ground or the sea. Shielding the world has produced ideas that range from simple science to science fiction. One suggestion has been to make the roofs of buildings and roads whiter to reflect the sun's rays back into space. While this has the advantage of simplicity, it simply won't make much difference, reflecting only 0.15 watts per square metre, averaged across the planet. To put this into perspective, to stop earth warming we need to increase heat loss by about 3.7 watts per square metre averaged over the world. Another idea is to protect the Greenland ice field by covering it in giant sheets of reflective material. If this works, it could help in the Antartic where the giant Filchner-Ronne ice shelf is melting rapidly. If this glacier disappears completely, it would raise sea levels, causing catastrophic flood damage around the planet.

D. If reflecting heat back from the ground has little effect, there are two alternatives: seeding clouds and replicating volcanic activity. The first idea is to make clouds whiter by increasing the amount of rain in them. Sending salt particles into clouds should 'seed' the clouds with more raindrops. Clouds carrying more raindrops would be whiter and better reflectors of sunlight. This could be good news for the earth and in addition could

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be stopped when necessary with the salt completely clear from the skies within ten years. Unfortunately, other research indicates that creating whiter clouds may have unwanted side effects, producing adverse weather conditions in the region and changing ocean currents. A much older idea is to replicate the effect volcanoes have had on the atmosphere. A volcanic eruption sends large amounts of ash and sulphur into the air, which block the sun and create cooler conditions. For example, when Mount Pinatubo erupted in 1991, it produced a sulphur dioxide cloud, which reduced average global temperatures by one degree centigrade. Geoengineers have long put forward the idea of circulating particles of sulphur in the atmosphere to counteract global warming. The particles would be delivered by aircraft or balloons spraying them into the atmosphere. However, this also has unpredictable effects on the amount and pattern of rainfall. Furthermore, this method would delay the recovery of the ozone layer over the Antartic by 30 to 70 years. More ambitious geoengineering projects have included placing billions of reflective balloons between the sun and the earth and putting giant mirrors into orbit. Scientists have criticised these approaches as 'science fiction' and say they are unlikely to happen due to the huge costs involved.

E. Whatever actions we take to block or reflect the heat from the sun, we will still need to reduce the amount of carbon dioxide in the atmosphere. Various geoengineering projects have been proposed to do this. Carbon capture technologies range from planting trees, which naturally use carbon dioxide as they grow, to pumping carbon back into the earth and trapping it there. This is a good idea but would only account for about 0.5 watts per square metre. Carbon capture technologies are already in use at power stations where the greenhouse gas is taken at point of production and pumped underground into depleted gas and oil reserves. However, the technology to do this is not very efficient. Other ideas for taking carbon out of the atmosphere include seeding the oceans with iron. This would increase the growth of plankton which, like trees, use carbon naturally. Unfortunately, this would only account for 0.2 watts per square metre.

F. Proponents of geoengineering have never regarded the earth-changing engineering projects as a complete solution. Nevertheless, the concept as a whole attracts many criticisms. One is that the problem of climate change is of such huge scale and complexity that there will not be one single solution. All proposals so far have advantages and disadvantages. The biggest problem of all is that many of the projects are untested and any of the proposals may have unforeseen consequences. For example, we could not suddenly stop a geoengineering scheme: keeping temperatures artificially low for a period then taking away the cause of this would cause the temperature to rise again rapidly. Furthermore, global engineering solutions to the problem of climate change would need the agreement of all the world's leaders: having an American solution, a Chinese solution, a Brazilian solution, and so on simply wouldn't be politically acceptable. But the biggest downfall is that geoengineering projects could reduce the political and popular pressure for reducing carbon emissions, as politicians point to geoengineering for an answer rather than tackling the real cause of climate change: human activity.

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Questions 1-6

*The six paragraphs of **Reading Passage 1** are lettered **A-F**.*

*Choose the most suitable headings for paragraphs **A-F** from the list of headings below.*

***NB** There are more headings than paragraphs, so you will not use them all.*

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

List of Headings

- **i.** Shielding the earth from the atmosphere
- **ii.** Bouncing back the sun's rays from earth
- **iii.** The effect of volcanoes on the atmosphere
- **iv.** Criticisms of geoengineering
- **v.** Trapping greenhouse gases
- **vi.** The root of the problem
- **vii.** Why attempt geoengineering?
- **viii.** Protecting glaciers
- **ix.** The need for action

Questions 7-12

Classify the following as typical of

- **A.** land-based reflection
- **B.** atmospheric reflection
- **C.** carbon capture

7. removes carbon dioxide as soon as it is produced
8. increases the reflectivity of white clouds
9. cleans carbon dioxide from the air naturally
10. would increase the number of small plants and animals in the sea
11. may help prevent rising water levels
12. is similar to the effect volcanoes have on the atmosphere

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Reading Passage 2

*You should spend about 20 minutes on **Questions 13 – 27**, which are based on Reading Passage 2.*

'Eyes on the World': Travel photography in the 21st century

One of the world's first travel shoots took place in 1849 when two young Frenchmen, Gustave Flaubert and Maxime Du Camp, decided they would set out on a great adventure and travel to Egypt. Du Camp took hundreds of photographs of the Pyramids and the Sphinx, and when he returned home and published his travel album, the images amazed the European public and turned Du Camp into a celebrity overnight.

While Du Camp's photographs may appear simple in comparison to modern photographs with their special effects, it seems to me that nowadays the majority of photographers fail to realise what the challenges were in taking photographs in the 19th century. To begin with, foreign travel was expensive and difficult to organise. Fortunately, Du Camp had money of his own and he was also able to get additional funding for the journey from the French government. Another issue was the size and weight of 19th-century cameras – they were very large and heavy. Finally, not only was there a great deal of equipment and chemicals to transport, but travelling itself could be highly dangerous. Of course, travel photographers do still take risks as part of their job, but the level of danger is hardly the same as when Du Camp was travelling across continents.

Nevertheless, as any professional photographer knows, to be good at the job still requires hard work and dedication. The popular idea that great photographs are often the result of a photographer being in exactly the right place at exactly the right time, just by chance, does not reflect reality. Last year, for example, on a visit to Reykjavik, Iceland, I met several photographers I knew. We were all there for the annual Winter Lights festival, involving works by many artists and musicians. One shot we all wanted was the perfect image of the aurora borealis – the strange green lights that sometimes appear briefly in the sky as the sun is going down. It took hours for everyone to decide how best to catch this moment and to work out where to place themselves to get the best result. In the end, I was delighted with the way my photographs turned out. In general, professional photographers share the feeling that the most rewarding photographs are the ones you've worked hard for.

Events like this attract photographers because the atmosphere can help create some wonderful photo opportunities. The Day of the Dead in Mexico is a perfect example. Although other countries have a similar event, for example, All Souls Day in the Philippines, the Mexican event is a photographer's dream. It's a time of celebration, when people remember relatives who have already passed away. Good photographs will capture that sense of joy in the bright and colourful decorations on the gravestones and in the faces of the families who are using humour and art to remember their dead. What's more, the local people are usually happy to share this experience with outsiders so visitors can participate if they wish. The festival is held in November, and should be included in any photographer's diary.

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Travelling as a photographer has encouraged me to question some ideas I previously believed to be true. An example of this is the popular belief that some groups of native Americans strongly dislike photographs and will turn away from cameras. This, however, is not the case. From talking to native Americans I've met on my journeys, it seems that it is now acceptable to regard photographs as valuable connections to ancestors and even include them in important ceremonies, some of which I have been lucky to observe and record.

One question that people often ask is whether it's possible to make a reasonable living in the travel photography industry today. Gone are the easy days when photographers simply shot photos for magazines and newspapers, sent them to an editor and got paid at the end of every month: these forms of media now usually buy photos for their stories directly from companies that store millions of them. As a result, photographers now need to be more flexible about the kind of projects they work on. One way to do this is by working for big businesses. In the past, photographers often decided where they would like to go, and could perhaps experiment more with the kinds of photographs they took. However, working for a big business often means that you are sent where the company wants you to go; perhaps to a beach or a mountain if they want to promote these as tourist destinations. The desert is another popular place: many car companies like to shoot this kind of background to advertise their new vehicles. Of course, nowadays this kind of well-paid work opportunity is very popular, so a huge number of photographers will all apply for the same job; a situation which you didn't see so much in the past. Nevertheless, in my experience, whether photographers are amateurs or professionals, there is a generally positive feeling between them: they are supportive of each other and willing to share advice about work opportunities and the risks that travelling to foreign destinations sometimes involves.

Questions 13-19

Do the following statements agree with the information given in the ***Reading Passage 2***

YES	*if the statement agrees with the writer's claims*
NO	*if the statement contradicts the writer's claims*
NOT GIVEN	*if there is impossible to say what the writer thinks about this*

13. Most photographers understand how hard it was to take photographs in the 19th century.

14. Some of the chemicals that Du Camp used for his photography were unsafe.

15. There is a lot of luck involved in taking really good photographs.

16. It's photographs that require a lot of effort that professional photographers are most pleased with.

17. All Souls Day in the Philippines is an older festival than the Day of the Dead in Mexico.

18. Mexican locals are happy for foreigners to attend Day of the Dead celebrations.

19. It has become common for some native American groups to photograph important ceremonies.

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Questions 20-23

Read the final paragraph of the text.

*Choose **FOUR** ideas which are found in the text.*

- ☐ **A.** Some photographers like to take photographs of serious subjects while others like to take amusing ones.
- ☐ **B.** The typical career of a photographer is not the same today as it was in the past.
- ☐ **C.** Newspapers no longer buy so many photographs from individual photographers.
- ☐ **D.** Big businesses sometimes use photographers to take pictures of their products or services.
- ☐ **E.** The internet has made it much easier to see the work of many photographers.
- ☐ **F.** There are a huge number of training courses if people want to study photography.
- ☐ **G.** Photographers talk to each other about their experiences and provide useful information.

Questions 24-27

Complete the summary below.

Choose the correct words or phrases to complete the summary

*Write **ONE** or **TWO WORDS** for each answer.*

Nowadays photographers cannot guarantee a _____ from the work they do, and they need to look for different kinds of project. One option is to get a job with _____ and take photographs for marketing purposes. A job like this is _____ among many photographers, and there is great competition between them. However, it is also true that in general, photographers have a _____ with each other, no matter whether they take photos for fun or as a career.

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Reading Passage 3

*You should spend about 20 minutes on **Questions 28 – 40**, which are based on Reading Passage 3.*

Lost for Words

Many minority languages are on the danger list

In the Native American Navajo nation which sprawls across four states in the American south-west, the native language is dying. Most of its speakers are middle-age or elderly. Although many students take classes in Navajo, the schools are run in English. Street sign, supermarket goods and even their own newspaper are all in English. Not surprisingly, linguists doubt that any native speakers of Navajo will remain in a hundred years' time.

Navajo is far from alone. Half the world's 6,800 languages are likely to vanish within two generations - that's one language lost every ten days. Never before has the planet's linguistic diversity shrunk at such a pace. "At the moment, we are heading for about three or four languages dominating the world", says Mark Pagel, an evolutionary biologist at the University of Reading. "It's a mass extinction, and whether we will ever rebound from the loss is difficult to know.'

Isolation breeds linguistic diversity as a result, the world is peppered with languages spoken by only a few people. Only 250 languages have more than a million speakers, and at least 3,000 have fewer than 2,500. It is not necessarily these small languages that are about to disappear. Navajo is considered endangered despite having 150,000 speakers. What makes a language endangered is not that the number of speakers, but how old they are. If it is spoken by children it is relatively safe. The critically endangered languages are those that are only spoken by the elderly, according to Michael Krauss, director of the Alaska Native Language Center, in Fairbanks.

Why do people reject the language of their parent? It begins with a crisis of confidence when a small community finds itself alongside a larger, wealthier society, says Nicholas Ostler of Britain's Foundation for Endangered Languages, in Bath. 'People lose faith in their culture' he says. 'When the next generation reaches their teens, they might not want to be induced into the old tradition.'

The change is not always voluntary. Quite often, governments try to kill off a minority language by banning its use in public or discouraging its use in school, all to promote national unity. The former US policy of running Indian reservation in English, for example, effectively put languages such as Navajo on the danger list. But Salikoko Mufwene, who chairs the Linguistics Department at the University of Chicago, argues that the deadliest weapon is not government policy but economic globalisation. 'Native Americans have not lost pride in their language, but they have had to adapt to socio-economic pressures' he says. 'They cannot refuse to speak English if most commercial activity is in English". But are languages worth saving? At the very least, there is a loss of data for the study of languages and their evolution, which relies on comparisons between languages, both living and dead. When an unwritten and unrecorded language disappears, it is lost to science.

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Language is also intimately bond up with culture, so it may be difficult to reserve one without the other. 'If a person shifts from Navajo to English, they lose something' Mufwene says. 'Moreover, the loss of diversity may also deprive us of different ways of looking at the world', says Pagel. There is mounting evidence that learning a language produces physiological changes in brain. 'Your brain and mine are different from the brain of someone, who speaks French, for instance' Pagel says, and this could affect our thoughts and perceptions. 'The patterns and connections we make among various concepts may be structured by the linguistic habits of our community.'

So despite linguists' best efforts, many languages will disappear over the next century. But a growing interest in cultural identity may prevent the direst predictions from coming true. 'The key to fostering diversity is for people to learn their ancestral tongue, as well as the dominant language' says Doug Whalen, founder and president of the Endangered Language Fund in New Haven, Connecticut. 'Most of these languages will not survive without a large degree of bilingualism' he says. In New Zealand, classes for children have slowed the erosion of Maori and rekindled interest in the language. A similar approach in Hawaii has produced about 8000 new speakers of Polynesian languages in the past few years. In California, 'apprentice' programmes have provided life support to several indigenous languages. Volunteer 'apprentices' pair up with one of the last living speakers of Native American tongue to learn a traditional skill such as basket weaving, with instruction exclusively in the endangered language. After about 300 hours of training, they are generally sufficiently fluent to transmit the language to the next generation. But Mufwene says that preventing a language dying out is not the same as giving it new life by using every day. 'Preserving a language is more likely preserving fruits in a jar' he says.

However, preservation can bring a language back from the dead. There are examples of languages that have survived in written form and then been revived by latter generations. But a written form is essential for this, so the mere possibility of revival has led many speakers of endangered languages to develop systems of writing where none existed before.

Questions 28-31

Complete the summary below.

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

There are currently approximately 6,800 languages in the world. This great variety of languages came about largely as a result of geographical . But in today's world, factors such as government initiatives and are contributing to a huge decrease in the number of languages. One factor which may help to ensure that some endangered languages do not die out completely is people's increasing appreciation of their . This has been encouraged though programmes of languages classes for children and through 'apprentice' schemes, in which the endangered language is used as the medium of instruction to teach people a . Some speakers of endangered languages have even produced writing systems in order to help secure the survival of their mother tongue.

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Questions 32-36

Match each statement with the correct person A-E.

*Write the correct letter **A, B, C, D** or **E** for questions 32-36.*

***NB** You may use any letter more than once.*

A. Michael Krauss
B. Salikoko Mufwene
C. Nicholas Ostler
D. Mark Pagel
E. Doug Whalen

32. Endangered languages cannot be saved unless people learn to speak more than one language.

33. Saving languages from extinction is not in itself a satisfactory goal.

34. The way we think may be determined by our language.

35. Young people often reject the established way of life in their community.

36. A change of language may mean a loss of traditional culture.

Questions 37-40

*Do the following statements agree with the information given in the **Reading Passage 3***

YES	*if the statement agrees with the writer's claims*
NO	*if the statement contradicts the writer's claims*
NOT GIVEN	*if there is impossible to say what the writer thinks about this*

37. The Navajo language will die out because it currently has too few speakers.

38. A large number of native speakers fails to guarantee the survival of a language.

39. National governments could do more to protect endangered languages.

40. The loss of linguistic diversity is inevitable.

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