Listening Part 1

Questions 1–10

30 *Complete the table below.*

*Write **ONE WORD ONLY AND / OR A NUMBER** for each answer.*

Kingstown Tours

Name of tour	Price	Main activities	Other information
Cave Explorers	*Example* $93	• go in a small **1** ..... to the other side of the lake • explore the caves	• minimum age of **2** ..... years
Silver Fjord	$220	• travel by **3** ..... to the fjord • at Easten go for a **4** ..... • cruise on the fjord • see mountains and a large **5**	• eat a barbecue lunch • see marine life such as seals and **6** .....
High Country	$105	• visit a historic home • lunch is in the **7** ..... • in the afternoon visit a **8**	• this tour has excellent reviews
Zipline	$75	• travel on a zipline above an old **9**	• reach speeds of **10** ..... miles per hour

Listening Part 2

Questions 11–15

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

Willford Living Museum

11 In the early 1800s most land in Willford was
- **A** occupied by houses.
- **B** used for farming.
- **C** covered in trees.

12 What happened in 1830 in Willford?
- **A** Ships started to be built nearby.
- **B** The first trains arrived in the town.
- **C** Valuable substances were found underground.

13 By the 1870s Willford was most famous for making
- **A** various metal objects.
- **B** all types of clothing.
- **C** plates and cups.

14 What does the guide say about visitors to the museum these days?
- **A** 900 visitors enter on a typical day.
- **B** 7,600 visitors arrive every week.
- **C** 300,000 visitors come each year.

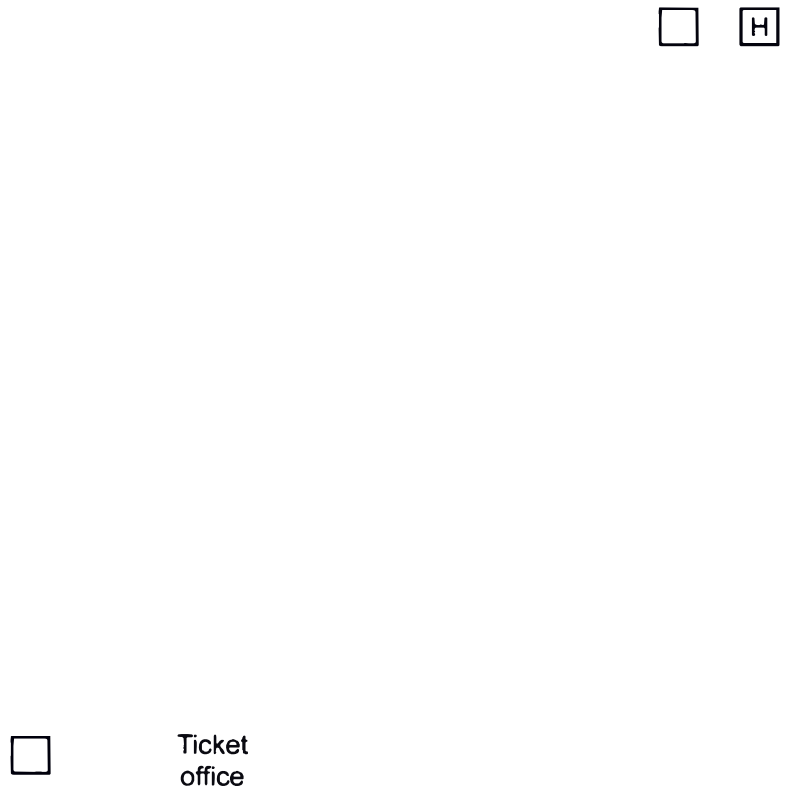
15 The museum is also sometimes used
- **A** as a location for filming.
- **B** for business conferences.
- **C** by people getting married.

Questions 16–20

Label the map below.

Write the correct letter, ***A–H****, next to* ***Questions 16–20****.*

Willford Living Museum



16 Old bakery .....

17 Doctor's surgery .....

18 Cooper's Cottage .....

19 Stables .....

20 Old school .....

Listening Part 3

32

Questions 21–22

*Choose **TWO** letters, **A–E**.*

*According to the students, what are the **TWO** most important benefits of market research?*

A Selecting the best advertising
B Reducing the levels of risks
C Building confidence among employees
D Saving money in the long run
E Identifying new opportunities

Questions 23–24

*Choose **TWO** letters, **A–E**.*

*Which do the students agree are **TWO** valid criticisms of market research?*

A It does not reveal any new information.
B Its benefits are hard to measure.
C It takes too much time to carry out.
D It makes use of too much specialist language.
E Its findings are sometimes wrong.

Questions 25–26

*Choose **TWO** letters, **A–E**.*

*The students are surprised by the success of which **TWO** sources of information.*

A face-to-face communication
B official government statistics
C the media and social media
D online surveys of public opinion
E filming customers as they shop

Questions 27–30

32 *Complete the flow-chart below.*

*Choose **FOUR** answers from the box and write the correct letter, **A–F**, next to **Questions 27–30**.*

A	written records
B	online studies
C	specific questions
D	individual responsibility
E	proper planning
F	regular meetings

Market Research Using a Business's Own Resources

Begin with staff education to maximise the chances of success.

↓

Give staff examples of **27** ..... that will be helpful every day.

↓

The BQR Group says that staff should make use of **28** ..... each week.

↓

Having **29** ..... is motivating for staff, according to *Business Guide*.

↓

Provide detailed feedback about any changes that you decide to make.

↓

Allow staff to have **30** ..... to ensure continued participation.

Listening Part 4

Questions 31–37

33 *Complete the notes below.*

*Write **ONE WORD ONLY** for each answer.*

Drinking Water

Introduction

- Drinking water is essential for human life.
- The '8 glasses a day' rule is a myth, except for the **31** .....

Some effects of water on the body

- Drinking before **32** ..... may assist weight loss.
- Dr Amaldi's study shows that water speeds up **33** .....
- A US research study showed that dehydrated bodies cannot control **34** ..... so well.
- There is no evidence that drinking water results in better **35** .....

The brain

- Women who drank lots of water had fewer **36** .....
- Men suffered more **37** ..... with insufficient water.

Questions 38–40

Complete the summary below.

*Write **ONE WORD ONLY** for each answer.*

Too much water?

Drinking too much water is not a common problem. Australian research has shown that people have difficulty **38** ..... when they have drunk enough. But occasionally people have become sick from too much water, particularly groups of **39** ..... . This may be because they have high levels of **40** ..... in their blood. The best advice is to drink when you are thirsty.

Reading Passage 1

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

Earth's lakes are under threat

Lake Poopó used to be Bolivia's second largest lake. Situated in the Altiplano Mountains at an altitude of around 3,700m, the lake in winter would cover an area of some 2,700 square kilometres as it was fed by swollen rivers. With very little rainfall during summer, this reduced to around 1,000, still a remarkable size. This was the pattern in previous centuries, but in December 2015, satellites confirmed the reports of local people that the lake had gone. While scientists had suspected that Poopó would eventually run dry, they didn't expect that this would occur for at least another thousand years. The local mining industry had already contributed to the pollution of the lake, but scientists believe global warming, drought and irrigation projects are all responsible for its disappearance. Today the consequences of Lake Poopó's disappearance are dramatic; many people who lived in the villages around it have left, since there are no more fish to be caught. Environmentalists also point to the fact that the lake had been the stopover point for thousands of birds as they migrated to other regions. Their numbers will certainly fall now the lake has gone.

Lake Poopó is not the only vast area of water to have disappeared. The Aral Sea in Central Asia was once the world's fourth largest lake but then it began to shrink in the 1960s. As a shallow lake, it depended on rivers to keep its level up. But then water from these rivers was diverted for irrigation purposes. Rice is a crop that needs huge quantities of water to survive in desert areas. Fields planted with cotton also require a regular supply. Now the water level is so low that fishing has stopped altogether. And it is not just the immediate area that is affected. Because the floor of the lake is now exposed, the salt that lies there is often carried by the wind across a radius of 300 kilometres. This impacts on agriculture as it damages growing plants and is absorbed by the soil.

For some lakes, the biggest threat is from climate change. On average, the surface water of the world's lakes has gone up in temperature by 0.34°C every ten years since 1985. Lake Tanganyika in East Africa is a lake where this trend has been observed, although it is by no means the most extreme example. This would be Lake Fracksjön in Sweden, where an increase of 1.35°C per decade has been observed – a figure which is estimated to rise. For Lake Tanganyika, however, the consequences have been severe. Warming has disrupted its ecosystem, and fish numbers have dropped sharply. In turn, this decline in fish stocks has impacted on families living in villages and towns around the lake, since they have no other source of protein. Furthermore, around 100,000 people depend on the fisheries established around Lake Tanganyika. These companies provide them with regular employment, without which communities will not survive.

In Iran, Lake Urmia's waters have also been affected by unusually hot summers, but dams and irrigation projects have also played a part. In the past, people admired its beautiful green-blue colour. However, the water now has a red tint. The reason for this is that bacteria quickly multiply in the warm waters of a shallow lake. Now local communities are understandably concerned about the future. One of their concerns is that Lake Urmia is no longer seen as a

place where people can bathe to improve their health. As a result, in the last decade, there has been a downturn in tourism in the area, an industry many people depended on.

In some cases, it can be a challenge for scientists to predict outcomes for a lake or to recognise the factors that threaten it. Take, for example, Lake Waiau in Hawaii, a lake that was used in healing rituals by native Hawaiians. It is a fairly small lake, approximately 100m across, with some variation as the water level rises and falls. However, in early 2010, the lake began to decrease in size. By September 2013, it could only be described as a pond. The cause of the lake's decline has not yet been established, but drought is among the suspects. Then there is Scott Lake in central Florida. In June 2006 a massive sinkhole opened up beneath the lake – acting like a plug hole in a bath. It only took two weeks for the water to drain away. Local residents called meetings to decide what action to take, but in the end, nature took care of the problem. Clay, sand and other fine material plugged the hole and the lake started to fill with water again. Nevertheless, as geologists point out, sinkholes can occur with some frequency in Florida, so there is a chance that Scott Lake will drain away again.

Questions 1–8

Complete the notes below.

*Choose **ONE WORD AND / OR A NUMBER** from the passage for each answer.*

Disappearing and Damaged Lakes

- Lake Poopó

  It covered about **1** _____ square kilometres in the dry season.

  It can no longer support people, fish or visiting **2** _____

- The Aral Sea

  It has shrunk because water is used for crops such as **3** _____ and rice.

  4 _____ from the bottom of the lake affects an area of 300 kilometres.

- Lake Tanganyika

  Families need to eat fish for its **5** _____

  Fisheries give **6** _____ to over 100,000 people.

- Lake Urmia

  The colour has changed because **7** _____ are increasing.

  8 _____ has declined in the last ten years.

Questions 9–13

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

In boxes 9–13 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*

9 Scientists are surprised that Lake Poopó has disappeared so quickly.

10 Steps are being taken to reduce the impact of mining on Lake Poopó.

11 Lake Fracksjön is the fastest warming lake in the world.

12 Researchers are certain about the reason for Lake Waiau's disappearance.

13 Lake Scott's rising water level has occurred as a result of rainfall.

Reading Passage 2

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

Biofuels: are they the fuels of the future?

Many plants can be turned into biofuels – but which ones should we use and what methods are best?

A

On paper, biofuels seem the ideal replacement for oil, coal and gas, the fossil fuels we depend upon, and which drive global warming and disrupt weather patterns by releasing carbon dioxide into the atmosphere. But the past decade has seen the biofuel industry face tough questions over whether it can truly claim to be 'green'. One of the biggest criticisms of biofuel crops – at least those that produce the fuel ethanol – has been their impact on food markets and on traditional land use. Direct impacts – for example, cutting down forests to make way for a biofuel crop – are usually obvious, says Professor Bill Laurance, director of the Centre for Tropical Environmental and Sustainability Science at James Cook University. But, in his experience, indirect impacts can be no less devastating for the environment and are far more of a challenge to anticipate.

B

Let's take Brazil, for example. When farmers in the US opted out of soy in favour of corn as a biofuel crop, soy prices soared, suddenly making it an attractive crop for Brazilian farmers. In turn, this increased demand for freshly deforested cropland in Brazil. Similar situations are occurring all over the world. But while deforestation can certainly lead to economic benefits for farmers, it also puts biodiversity at risk. Then, once a biofuel crop has been planted on deforested land, farmers need to ensure that it grows as well as it can. That means applying large quantities of fertiliser, and while this helps the plants to shoot up, there is also the possibility it will lead to the contamination of local rivers.

C

Not all biofuels have been grown on land, but the once-popular idea of generating them from microscopic algae grown in ponds or tanks has largely been forgotten. Professor Rachel Burton, leader of the ARC Centre of Excellence for Plant Cell Walls at the University of Adelaide, thinks that there is a smarter way forward for biofuels and it starts with selecting the right crop for land not usually used for agriculture. Burton and others are looking to tough plants that grow on land too dry or salty for conventional crops. Australia, for example, could turn to crops such as agave, hemp or the native saltbush and wild-growing sorghum for the biofuels of the future, she says.

D

Researchers must also consider economic factors, however. While plant oils can be extracted and turned into biodiesel for vehicles and machinery, currently the process is very expensive – much more so than the process for fossil fuels. Dr Allan Green is innovation leader for bio-based products at CSIRO Agriculture and Food. His solution is to make plants oilier by genetically altering them so that they produce oil in their leaves, not just in their fruit or seeds. With more oil being produced on a particular section of land by the same number of plants, it would become cheaper to harvest and extract the oil. The technology, which has so far only been tested in tobacco, shows that oil production can be boosted to a third or more of a tobacco leaf's weight. If used in a different crop – one that already produces oil in its seeds or fruit – the hope is that oil output could be doubled, though that idea is yet to be put to the test.

E

A technology which is becoming increasingly popular in the biofuel industry is hydrothermal liquefaction. This is a process which uses heat and pressure to break apart molecules in whole

plants and remove oxygen, so that the raw material is turned into 'bio-crude oil'. Then, just as we need to refine the crude oil made from fossil fuels, the plant-based oil is also refined. After this, it can then be turned into different kinds of fuel. One advantage of the hydrothermal liquefaction process is that many kinds of plant can be used. And if this process could run on energy from solar panels or wind farms, it would be much more environmentally sustainable.

F

New processing technologies are giving biofuel producers hope that, in future, they won't be limited to plants designed to be biofuel-only crops. Perhaps they will be able to choose species that deliver added benefits or sources of income. Hemp crops, for instance, could be used for their oil, but also for their fibre. Some car manufacturers have already used it as a soundproofing material in their vehicles, and others may do the same. And according to Kirsten Heimann, associate professor at the College of Science and Engineering at James Cook University, it might be possible, say, for algae not just to act as a biofuel, but to decontaminate water. Burton believes this kind of multi-purpose use for biofuel crops is the way forward. 'It's much more sophisticated thinking,' she says. 'Biofuels maybe don't need to be as cheap as we think they do, because you can make money out of the other things.' Eventually, the biofuel industry could well develop into a very diverse one, with no one crop or process dominating the market, according to Green. 'The amount of fuel we need to move away from petroleum is massive, so there's plenty of space for all technologies,' he says.

Questions 14–19

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

Which paragraph contains the following information?

14 a theory about oil production which must still be proved

15 an overview of the stages in a particular biofuel manufacturing method

16 examples of the uses that biofuel crops might have apart from providing energy

17 an explanation of the way that fossil fuel use harms the environment

18 reference to a particular biofuel production method being abandoned

19 a comparison between the production costs for biofuels and for other kinds of fuel

Questions 20–23

Look at the following statements (Questions 20–23) and the list of researchers below.

Match each statement with the correct researcher, ***A****,* ***B*** *or* ***C****.*

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

20 It would be more cost-effective if a biofuel was used for a range of products.

21 It is not always easy to predict what effects the use of biofuels crops may have.

22 A variety of biofuel crops and manufacturing processes will be required in future.

23 It would be best to use biofuel crops that can survive in difficult environmental conditions.

List of researchers

A Professor Bill Laurance

B Professor Rachel Burton

C Dr Allan Green

Questions 24–26

Complete the sentences below.

Choose ***ONE WORD ONLY*** *from the passage for each answer.*

24 The decision by US farmers to grow ..... had an effect on land in Brazil.

25 ..... is threatened when trees are cut down so crops can be planted.

26 Rivers may be polluted by the ..... that farmers use on biofuel crops.

Reading Passage 3

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

Team Building

If you thought ancient monuments were built in honour of gods and kings, think again, says Laura Spinney

At Poverty Point in the US state of Louisiana, a remarkable monument overlooks the Mississippi river. Built around 3,500 years ago entirely from earth, it consists of six semi-circular ridges and five mounds. 'Mound A', as archaeologists refer to it, is the largest at 22 metres high. The earth mounds at Poverty Point are not just impressive, they are also intriguing. Ancient monuments have always been regarded as products of large, hierarchical societies, built as tributes to gods and kings. But the creators of the Poverty Point monument were hunter-gatherers, who functioned in a more democratic way. They may have looked to elders for guidance, but these would not have exerted a commanding influence over their small groups. So who, or what, motivated building on such a grand scale?

Archaeologists have been excavating Poverty Point for more than a century. However, the truly remarkable nature of Mound A only emerged a few years ago. This was when a team led by Tristram Kidder of Washington University drilled into the mound. They saw for the first time that it consisted of neat layers of differently coloured earth. It rains a lot around Poverty Point, and we know that fluctuations in temperature and increased flooding eventually led to its abandonment. But Kidder could see no sign that the layers had combined, as you might expect if it had rained during construction. Kidder reached a startling conclusion: Mound A must have been built in one short period, perhaps in as little as 30 days, and probably no more than 90.

Mound A contains nearly 240,000 cubic metres of earth; the equivalent of 32,000 truckloads. There were no trucks then, of course, nor any other heavy machinery, animals like mules to carry the earth, or wheelbarrows. Assuming it did take 90 days, Kidder's group calculated that around 3,000 basket-carrying individuals would have been needed to get the job done. Given that people probably travelled in family groups, as many as 9,000 people may have assembled at Poverty Point during construction. 'If that's true, it was an extraordinarily large gathering,' says Kidder. Why would they have chosen to do this?

Another archaeologist, Carl Lipo, thinks he has the answer: the same reason that the people of Easter Island built their famous stone heads. When Lipo first when to Easter Island, the prevailing idea was that the enormous statues had been rolled into place using logs, and the resulting deforestation contributed to the human population's collapse. But Lipo and fellow archaeologist Terry Hunt showed the statues could have been 'walked' upright into place by cooperating bands of people using ropes, with no need for trees. They argue further that by making statues, people's energy was directed into peaceful interactions and information-sharing. They ceased crafting statues, Lipo claims, precisely because daily existence became less of a challenge, and it was no longer so important that they work together.

An ancient temple known as Göbekli Tepe in south-east Turkey is another site where a giant team-building project might have taken place. Since excavations started, archaeologists have uncovered nine enclosures formed of massive stone pillars. Given the vast size of these pillars, a considerable workforce would have been needed to move them.

But what archaeologists have also discovered is that every so often, the workers filled in the enclosures with broken rock and built new ones. The apparent disposability of these monuments makes sense if the main aim was building a team rather than a lasting structure. Indeed, the many bones from animals such as gazelle found in the filled-in enclosures suggest people held feasts to celebrate the end of a collaborative effort.

A number of researchers share Lipo's view that the need to cooperate is what drove monument makers. But as you might expect when a major shift in thinking is proposed, not everyone goes along with it. The sceptics include Tristram Kidder. For him, the interesting question is not 'Did cooperative building promote group survival' but 'What did the builders *think* they were doing?' All human behaviour comes down to a pursuit of food and self-preservation, he says. As for why people came to Poverty Point, he and his colleagues have suggested it was a pilgrimage site.

If Lipo is right, have we in any way inherited our ancestors' tendency to work together for the sake of social harmony? Evolutionary biologist David Sloan Wilson thinks we have. Wilson cites the Burning Man festival, promoted as an experiment in community and art, which draws thousands of people to Nevada's Black Rock Desert each summer. Among the ten principles laid down by co-founder Larry Harvey are 'inclusion' and 'communal effort'. Another is 'leaving no trace', meaning that whatever festival-goers create they destroy before departing. In this way, the desert landscape is only temporarily disturbed. Wilson says there is evidence that such cooperative ventures matter more today than ever because we are dependent on a wider range of people than our ancestors were. Food, education, security: all are provided by people beyond our family group. Recently, as part of his Neighbourhood Project in Binghamton, Wilson and his colleagues helped locals create their own parks. 'This brought people together and enabled them to cooperate in numerous other contexts,' he explains. This included helping with repairs after a series of floods in 2011. Social psychologist Susan Fiske of Princeton University also sees value in community projects. Her research shows, for example, that they can help break down the ill-informed views that people hold towards others they have observed but do not usually interact with. So if modern projects really help build better communities, that will surely be a monumental achievement.

Questions 27–32

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27–32 on your answer sheet, write

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

27 The whole monument at Poverty Point was made out of earth.

28 The monument at Poverty Point was the first of its kind to be built in the US.

29 The older members of the tribes at Poverty Point had great power over their people.

30 It is surprising that archaeologists took so long to discover the existence of Mound A.

31 Tristram Kidder's work at Mound A revealed something previously unknown to researchers.

32 A change in weather patterns forced people living around the Poverty Point monument to move away.

Questions 33–36

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

Write the correct letter in boxes 33–36 on your answer sheet.

33 The writer refers to trucks, mules and wheelbarrows in order to

- **A** highlight the technical ability of the Poverty Point inhabitants.
- **B** emphasise the number of workers required to build the mound.
- **C** question the logic of choosing Poverty Point as a place for construction.
- **D** challenge the idea that the mound could have been made so quickly.

34 Archaeologist Carl Lipo's research at Easter Island has led him to believe that

- **A** people had to cut down trees in order to transport larger statues.
- **B** remote communities faced greater environmental challenges than other societies.
- **C** islanders stopped making statues when their lives became easier.
- **D** methods of making the statues varied amongst different groups.

35 According to the writer, excavations at Göbekli Tepe suggest that

- **A** there was disagreement between groups over the temple's design.
- **B** human occupation drove certain animal populations into decline.
- **C** each of the enclosures that were built served a different purpose.
- **D** the builders had no intention of creating permanent structures.

36 In the sixth paragraph, what are we told about Tristram Kidder?

- **A** He feels the academic community should support Carl Lipo's theory.
- **B** He has changed his mind about the purpose of the Poverty Point monument.
- **C** He doubts that Carl Lipo has identified the key reason for monument making.
- **D** He believes that most people recognise the need to help each other to survive.

Questions 37–40

*Complete the summary using the list of words, **A–I**, below.*

*Write the correct letter, **A–I**, in boxes 37–40 on your answer sheet.*

A basic needs	**B** different generations	**C** new infrastructure	**D** human activities
E negative impressions	**F** emergency situations	**G** commercial advertising	**H** economic growth

Examples of cooperation in modern times

David Wilson believes that events such as the Burning Man festival encourage social harmony. For example, participants in the festival cooperate so **37** ..... won't permanently affect the desert environment. In Wilson's opinion, cooperation is especially important today because we now rely on many people for our **38** ..... . Wilson also points to how community projects such as park creation can lead to improved group efforts in **39** ..... . Psychologist Susan Fiske has also shown how **40** ..... can change when community projects encourage interaction between strangers.