

# ACADEMIC MOCK TEST 4

## LISTENING

### Part 1: Questions 1-10

Complete the notes below. Write **ONE WORD AND/ OR A NUMBER** for each answer.

#### Holiday rental

Owners' names: Jack Fitzgerald and Shirley Fitzgerald

#### Granary Cottage

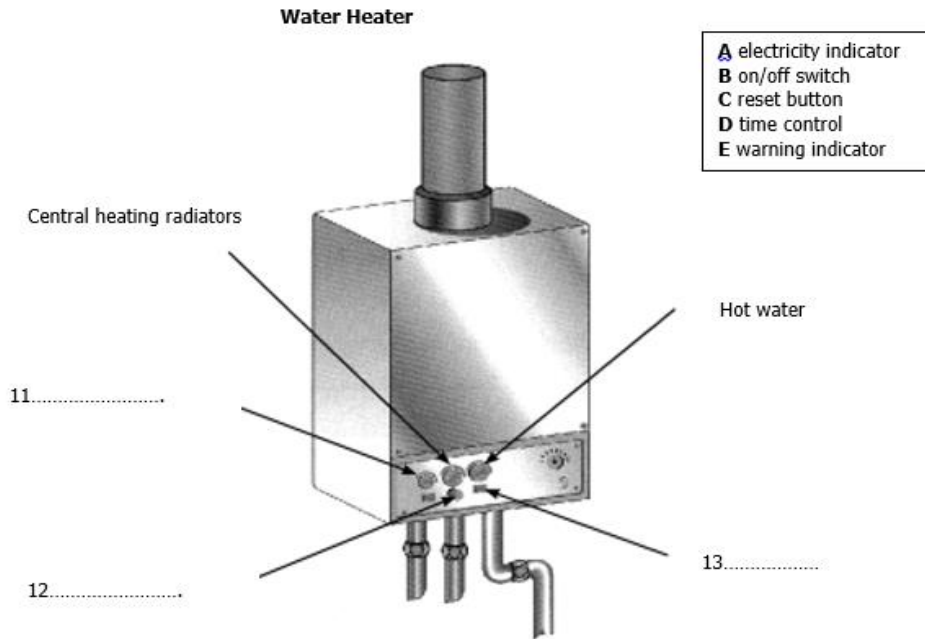
- available for week beginning (1)  May
- cost for the week: (2) £
- (3)  Cottage
- cost for the week: £480
- building was originally a (4)
- walk through doors from living room into a (5)
- several (6)  spaces at the front
- bathroom has a shower
- central heating and stove that burns (7)
- views of old (8)  from living room
- view of hilltop (9)  from the bedroom

#### Payment

- deposit: £144
- deadline for final payment: end of (10)

**Part 2: Questions 11-13**

Label the diagram below. Choose THREE answers from the box and write the correct letters A-E.



- 11.
- 12.
- 13.

**Questions 14-18**

Where can each of the following items be found?

Choose **FIVE** answers from the options and write the correct letter A-G.

**Locations**

A in box on washing machine

- B** in cupboard on landing
- C** in chest of drawers
- D** next to window in living room
- E** on shelf of back door
- F** on top of television
- G** under kitchen sink

14. Pillows

15. Washing powder

16. Key

17. Light bulbs

18. Map

### Questions 19 and 20

Complete the notes below. Write **ONE WORD OR A NUMBER**.

The best place to park in town – next to station

Phone number for takeaway pizzas – **(19)**

Railway museum closed on **(20)**

### Part 3: Questions 21-25

Choose the correct letter A, B or C.

### Scandinavian Studies

21. James chose to take Scandinavian Studies because when he was a child

- A. he was often taken to Denmark
- B. his mother spoke to him in Danish
- C. a number of Danish people visited his family

22. When he graduates James would like to

- A. take a postgraduate course
- B. work in the media
- C. become a translator

23. Which course will end this term?

- A. Swedish cinema
- B. Danish television programmes
- C. Scandinavian literature

24. They agree that James' literature paper this term will be on

- A. 19th century playwrights
- B. the Icelandic sagas
- C. modern Scandinavian novels

25. Beth recommends that James' paper should be

- A. a historical overview of the genre
- B. an in-depth analysis of a single write
- C. a study of the social background to the literature

21.

24.

22.

25.

23.

### Questions 26-30

Complete the flow chart below.

Choose **FIVE** answers from options below and write correct letter A-G next to questions 26-30

A bullet points

B film

C notes

D structure

E student paper

F textbook

G documentary

### How James will write his paper on the Vikings

- He'll read a (26)  and choose his topic
- He'll borrow a (27)  from Beth
- He'll plan the (28)  of the paper
- He'll read some material and write (29)
- He'll write paper using (30)

### Part 4: Questions 31-40

Complete the notes below using **NO MORE THAN TWO WORDS** for each answer.

#### THE URBAN LANDSCAPE

Two areas of focus:

- the effect of vegetation on the urban climate
- ways of planning our (31)  better

Large-scale impact of trees:

- they can make cities more or less **(32)**
- in summer they can make cities cooler
- they can make inland cities more **(33)**

Local impact of trees:

- they can make local areas
  - more **(34)**
  - cooler
  - more humid
  - less windy
  - less **(35)**

Comparing trees and buildings

Temperature regulation:

- trees evaporate water through their **(36)**
- building surfaces may reach high temperatures

Wind force:

- tall buildings cause more wind at **(37)**  level
- trees **(38)**  the wind force

Noise:

- trees have a small effect on traffic noise
- **(39)**  frequency noise passes through trees

Important points to consider:

- trees require a lot of sunlight, water and **(40)**  to grow

# READING

## READING PASSAGE-1

### INFORMATION THEORY – THE BIG IDEA

**A** In April 2002 an event took place which demonstrated one of the many applications of information theory. The space probe, Voyager I, launched in 1977, had sent back spectacular images of Jupiter and Saturn and then soared out of the Solar System on a one-way mission to the stars. After 25 years of exposure to the freezing temperatures of deep space, the probe was beginning to show its age. Sensors and circuits were on the brink of failing and NASA experts realised that they had to do something or lose contact with their probe forever. The solution was to get a message to Voyager I to instruct it to use spares to change the failing parts. With the probe 12 billion kilometres from Earth, this was not an easy task. By means of a radio dish belonging to NASA's Deep Space Network, the message was sent out into the depths of space. Even travelling at the speed of light, it took over 11 hours to reach its target, far beyond the orbit of Pluto. Yet, incredibly, the little probe managed to hear the faintcall from its home planet, and successfully made the switchover.

**B** It was the longest-distance repair job in history, and a triumph for the NASA engineers. But it also highlighted the astonishing power of the techniques developed by American communications engineer Claude Shannon, who had died just a year earlier. Born in 1916 in Petoskey, Michigan, Shannon showed an early talent for maths and for building gadgets, and made breakthroughs in the foundations of computer technology when still a student. While at Bell Laboratories, Shannon developed information theory, but shunned the resulting acclaim. In the 1940s, he single-handedly created an entire science of communication which has since inveigled its way into a host of applications, from DVDs to satellite communications to bar codes- any area, in short, where data has to be conveyed rapidly yet accurately.

**C** This all seems light years away from the down-to-earth uses Shannon originally had for his work, which began when he was a 22-year-old graduate engineering student at the prestigious Massachusetts Institute of Technology in 1939. He set out with an apparently simple aim: to pin down the precise meaning of the concept of 'information'. The most basic form of information, Shannon argued, is whether something is true or false – which can be captured in the binary unit, or 'bit', of the form 1 or 0. Having identified this fundamental unit, Shannon set about defining otherwise vague ideas about information and how to transmit it from place to place. In the process he discovered something surprising: it is always possible to guarantee information will get through random interference – 'noise' – intact.



**D** Noise usually means unwanted sounds which interfere with genuine information. Information theory generalises this idea via theorems that capture the effects of noise with mathematical precision. In particular, Shannon showed that noise sets a limit on the rate at which information can pass along communication channels while remaining error-free. This rate depends on the relative strengths of the signal and noise travelling down the communication channel, and on its capacity (its 'bandwidth'). The resulting limit, given in units of bits per second, is the absolute maximum rate of error-free communication given signal strength and noise level. The trick, Shannon showed, is to find ways of packaging up – 'coding' – information to cope with the ravages of noise, while staying within the information-carrying capacity – 'bandwidth' – of the communication system being used.

**E** Over the years scientists have devised many such coding methods, and they have proved crucial in many technological feats. The Voyager spacecraft transmitted data using codes which added one extra bit for every single bit of information; the result was an error rate of just one bit in 10,000 – and stunningly clear pictures of the planets. Other codes have become part of everyday life – such as the Universal Product Code, or bar code, which uses a simple error-detecting system that ensures supermarket check-out lasers can read the price even on, say, a crumpled bag of crisps. As recently as 1993, engineers made a major breakthrough by discovering so-called turbo codes – which come very close to Shannon's ultimate limit for the maximum rate that data can be transmitted reliably, and now play a key role in the mobile videophone revolution.

**F** Shannon also laid the foundations of more efficient ways of storing information, by stripping out superfluous ('redundant') bits from data which contributed little real information. As mobile phone text messages like 'I CN C U' show, it is often possible to leave out a lot of data without losing much meaning. As with error correction, however, there's a limit beyond which messages become too ambiguous. Shannon showed how to calculate this limit, opening the way to the design of compression methods that cram maximum information into the minimum space.

### Questions 1-6

Reading Passage 1 has six paragraphs, A-F. Which paragraph contains the following information?

- 1 an explanation of the factors affecting the transmission of information
- 2 an example of how unnecessary information can be omitted
- 3 a reference to Shannon's attitude to fame
- 4 details of a machine capable of interpreting incomplete information
- 5 a detailed account of an incident involving information theory
- 6 a reference to what Shannon initially intended to achieve in his research

**Questions 7-11**

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

**The Voyager I Space Probe**

The probe transmitted pictures of both (7) .....and ..... , then left the (8) .....  
The freezing temperatures were found to have a negative effect on parts of the space probe.  
Scientists feared that both the (9)..... and ..... were about to stop working. The  
only hope was to tell the probe to replace them with (10)..... – but distance made  
communication with the probe difficult. A (11)..... was used to transmit the message  
at the speed of light. The message was picked up by the probe and the switchover took place.

**Questions 12-14**

Do the following statements agree with the information given in Reading Passage 1? In boxes 12-14 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

12. The concept of describing something as true or false was the starting point for Shannon in his attempts to send messages over distances.

13. The amount of information that can be sent in a given time period is determined with reference to the signal strength and noise level.

14. Products have now been developed which can convey more information than Shannon had anticipated as possible.

## Reading Passage 2

For the century before Johnson's Dictionary was published in 1775, there had been concern about the state of the English language. There was no standard way of speaking or writing and no agreement as to the best way of bringing some order to the chaos of English spelling. Dr Johnson provided the solution.

There had, of course, been dictionaries in the past, the first of these being a little book of some 120 pages, compiled by a certain Robert Cawdray, published in 1604 under the title *A Table Alphabetical of hard usual English words*. Like the various dictionaries that came after it during the seventeenth century, Cawdray's tended to concentrate on 'scholarly' words; one function of the dictionary was to enable its student to convey an impression of fine learning.

Beyond the practical need to make order out of chaos, the rise of dictionaries is associated with the rise of the English middle class, who were anxious to define and circumscribe the various worlds to conquer -lexical as well as social and commercial. It is highly appropriate that Dr Samuel Johnson, the very model of an eighteenth-century literary man, as famous in his own time as in ours, should have published his Dictionary at the very beginning of the heyday of the middle class.

Johnson was a poet and critic who raised common sense to the heights of genius. His approach to the problems that had worried writers throughout the late seventeenth and early eighteenth centuries was intensely practical. Up until his time, the task of producing a dictionary on such a large scale had seemed impossible without the establishment of an academy to make decisions about right and wrong usage. Johnson decided he did not need an academy to settle arguments about language; he would write a dictionary himself; and he would do it single-handed. Johnson signed the contract for the Dictionary with the bookseller Robert Dodsley at a breakfast held at the Golden Anchor Inn near Holborn Bar on 18 June 1764. He was to be paid £1,575 in instalments, and from this he took money to rent 17 Gough Square, in which he set up his 'dictionary workshop'.

James Boswell, his biographer described the garret where Johnson worked as 'fitted up like a counting house' with a long desk running down the middle at which the copying clerks would work standing up. Johnson himself was stationed on a rickety chair at an 'old crazy deal table' surrounded by a chaos of borrowed books. He was also helped by six assistants, two of whom died whilst the Dictionary was still in preparation.

The work was immense; filing about eighty large notebooks (and without a library to hand), Johnson wrote the definitions of over 40,000 words, and illustrated their many meanings with

some 114,000 quotations drawn from English writing on every subject, from the Elizabethans to his own time. He did not expect to achieve complete originality. Working to a deadline, he had to draw on the best of all previous dictionaries, and to make his work one of heroic synthesis. In fact, it was very much more. Unlike his predecessors, Johnson treated English very practically, as a living language, with many different shades of meaning. He adopted his definitions on the principle of English common law – according to precedent. After its publication, his Dictionary was not seriously rivalled for over a century.

After many vicissitudes the Dictionary was finally published on 15 April 1775. It was instantly recognised as a landmark throughout Europe. ‘This very noble work;’ wrote the leading Italian lexicographer, will be a perpetual monument of Fame to the Author, an Honour to his own Country in particular, and a general Benefit to the republic of Letters throughout Europe. The fact that Johnson had taken on the Academies of Europe and matched them (everyone knew that forty French academics had taken forty years to produce the first French national dictionary) was cause for much English celebration.

Johnson had worked for nine years, ‘with little assistance of the learned, and without any patronage of the great; not in the soft obscurities of retirement, or under the shelter of academic bowers, but amidst inconvenience and distraction, in sickness and in sorrow’. For all its faults and eccentricities his two-volume work is a masterpiece and a landmark, in his own words, ‘setting the orthography, displaying the analogy, regulating the structures, and ascertaining the significations of English words’. It is the cornerstone of Standard English, an achievement which, in James Boswell’s words, ‘conferred stability on the language of his country’.

The Dictionary, together with his other writing, made Johnson famous and so well esteemed that his friends were able to prevail upon King George III to offer him a pension. From then on, he was to become the Johnson of folklore.

### Questions 15-17

Choose **THREE** letters A-H. Write your answers in boxes 15-17 on your answer sheet.

NB Your answers may be given in any order.

Which **THREE** of the following statements are true of Johnson’s Dictionary?

- A** It avoided all scholarly words.
- B** It was the only English dictionary in general use for 200 years.
- C** It was famous because of the large number of people involved.
- D** It focused mainly on language from contemporary texts.

- E There was a time limit for its completion.
- F It ignored work done by previous dictionary writers.
- G It took into account subtleties of meaning.
- H Its definitions were famous for their originality.

15

16

17

**Questions 18-21**

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

In 1764 Dr Johnson accepted the contract to produce a dictionary. Having rented a garret, he took on a number of (18) ....., who stood at a long central desk. Johnson did not have a (19) ..... available to him, but eventually produced definitions of in excess of 40,000 words written down in 80 large notebooks. On publication, the Dictionary was immediately hailed in many European countries as a landmark. According to his biographer, James Boswell, Johnson’s principal achievement was to bring (20) ..... to the English language. As a reward for his hard work, he was granted a (21) ..... by the king.

18.

20.

19.

21.

**Questions 22-27**

Do the following statements agree with the information given in Reading Passage 2? In boxes 22-27 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

- 22) The growing importance of the middle classes led to an increased demand for dictionaries.
- 23) Johnson has become more well known since his death.
- 24) Johnson had been planning to write a dictionary for several years.
- 25) Johnson set up an academy to help with the writing of his Dictionary.
- 26) Johnson only received payment for his Dictionary on its completion.
- 27) Not all of the assistants survived to see the publication of the Dictionary.

### Reading Passage 3

#### The future of work

According to a leading business consultancy, 3-14% of the global workforce will need to switch to a different occupation within the next 10-15 years, and all workers will need to adapt as their occupations evolve alongside increasingly capable machines. Automation – or ‘embodied artificial intelligence’ (AI) – is one aspect of the disruptive effects of technology on the labour market. ‘Disembodied AI’, like the algorithms running in our smartphones, is another.

Dr Stella Pachidi from Cambridge Judge Business School believes that some of the most fundamental changes are happening as a result of the ‘algorithmication’ of jobs that are dependent on data rather than on production – the so-called knowledge economy. Algorithms are capable of learning from data to undertake tasks that previously needed human judgement, such as reading legal contracts, analysing medical scans and gathering market intelligence.

‘In many cases, they can outperform humans,’ says Pachidi. ‘Organisations are attracted to using algorithms because they want to make choices based on what they consider is “perfect information”, as well as to reduce costs and enhance productivity.’

‘But these enhancements are not without consequences,’ says Pachidi. ‘If routine cognitive tasks are taken over by AI, how do professions develop their future experts?’ she asks. ‘One way of learning about a job is “legitimate peripheral participation” – a novice stands next to experts and learns by observation. If this isn’t happening, then you need to find new ways to learn.’

Another issue is the extent to which the technology influences or even controls the workforce. For over two years, Pachidi monitored a telecommunications company. 'The way telecoms salespeople work is through personal and frequent contact with clients, using the benefit of experience to assess a situation and reach a decision. However, the company had started using a[n] ... algorithm that defined when account managers should contact certain customers about which kinds of campaigns and what to offer them.'

The algorithm – usually built by external designers – often becomes the keeper of knowledge, she explains. In cases like this, Pachidi believes, a short-sighted view begins to creep into working practices whereby workers learn through the 'algorithm's eyes' and become dependent on its instructions. Alternative explorations – where experimentation and human instinct lead to progress and new ideas – are effectively discouraged.

Pachidi and colleagues even observed people developing strategies to make the algorithm work to their own advantage. 'We are seeing cases where workers feed the algorithm with false data to reach their targets,' she reports.

It's scenarios like these that many researchers are working to avoid. Their objective is to make AI technologies more trustworthy and transparent, so that organisations and individuals understand how AI decisions are made. In the meantime, says Pachidi, 'We need to make sure we fully understand the dilemmas that this new world raises regarding expertise, occupational boundaries and control.'

Economist Professor Hamish Low believes that the future of work will involve major transitions across the whole life course for everyone: 'The traditional trajectory of full-time education followed by full-time work followed by a pensioned retirement is a thing of the past,' says Low. Instead, he envisages a multistage employment life: one where retraining happens across the life course, and where multiple jobs and no job happen by choice at different stages.

On the subject of job losses, Low believes the predictions are founded on a fallacy: 'It assumes that the number of jobs is fixed. If in 30 years, half of 100 jobs are being carried out by robots, that doesn't mean we are left with just 50 jobs for humans. The number of jobs will increase: we would expect there to be 150 jobs.'

Dr Ewan McGaughey, at Cambridge's Centre for Business Research and King's College London, agrees that 'apocalyptic' views about the future of work are misguided. 'It's the laws that restrict the supply of capital to the job market, not the advent of new technologies that causes unemployment.'

His recently published research answers the question of whether automation, AI and robotics will mean a 'jobless future' by looking at the causes of unemployment. 'History is clear that change can mean redundancies. But social policies can tackle this through retraining and redeployment.'

He adds: 'If there is going to be change to jobs as a result of AI and robotics then I'd like to see governments seizing the opportunity to improve policy to enforce good job security. We can "reprogramme" the law to prepare for a fairer future of work and leisure.' McGaughey's findings are a call to arms to leaders of organisations, governments and banks to pre-empt the coming changes with bold new policies that guarantee full employment, fair incomes and a thriving economic democracy.

'The promises of these new technologies are astounding. They deliver humankind the capacity to live in a way that nobody could have once imagined,' he adds. 'Just as the industrial revolution brought people past subsistence agriculture, and the corporate revolution enabled mass production, a third revolution has been pronounced. But it will not only be one of technology. The next revolution will be social.'

### **Questions 28-30**

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

28. According to the second paragraph, what is Stella Pachidi's view of the 'knowledge economy'?

- A** It is having an influence on the number of jobs available.
- B** It is changing people's attitudes towards their occupations.
- C** It is the main reason why the production sector is declining.
- D** It is a key factor driving current developments in the workplace.

29. What did Pachidi observe at the telecommunications company?

- A** staff disagreeing with the recommendations of AI
- B** staff feeling resentful about the intrusion of AI in their work
- C** staff making sure that AI produces the results that they want
- D** staff allowing AI to carry out tasks they ought to do themselves



30. In his recently published research, Ewan McGaughey
- A challenges the idea that redundancy is a negative thing.
  - B shows the profound effect of mass unemployment on society.
  - C highlights some differences between past and future job losses.
  - D illustrates how changes in the job market can be successfully handled.

28.

29.

30.

### Questions 31-34

Complete the summary using the list of words, A-G, below. Write the correct letter, A-G, in boxes 31-34 on your answer sheet.

#### The 'algorithmic' of jobs

Stella Pachidi of Cambridge Judge Business School has been focusing on the 'algorithmic' of jobs which rely not on production but on (31) .....While monitoring a telecommunications company, Pachidi observed a growing (32) ..... on the recommendations made by AI, as workers begin to learn through the 'algorithm's eyes'. Meanwhile, staff are deterred from experimenting and using their own (33) ..... and are therefore prevented from achieving innovation. To avoid the kind of situations which Pachidi observed, researchers are trying to make AI's decision-making process easier to comprehend, and to increase users' (34) ..... with regard to the technology.

- A pressure
- B satisfaction
- C intuition
- D promotion
- E reliance
- F confidence
- G information

31.

33.

32.

34.

**Questions 35-40**

Look at the following statements (Questions 35-40) and the list of people below. Match each statement with the correct person, A, B or C. Write the correct letter, A, B or C, in boxes 35-40 on your answer sheet. NB You may use any letter more than once.

35. Greater levels of automation will not result in lower employment.

36. There are several reasons why AI is appealing to businesses.

37. AI's potential to transform people's lives has parallels with major cultural shifts which occurred in previous eras.

38. It is important to be aware of the range of problems that AI causes.

39. People are going to follow a less conventional career path than in the past.

40. Authorities should take measures to ensure that there will be adequately paid work for everyone.

**List of people**

**A** Stella Pachidi

**B** Hamish Low

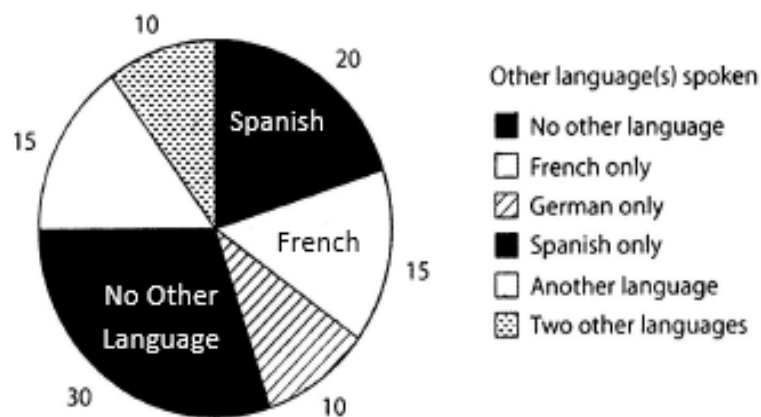
**C** Ewan McGaughey

## WRITING

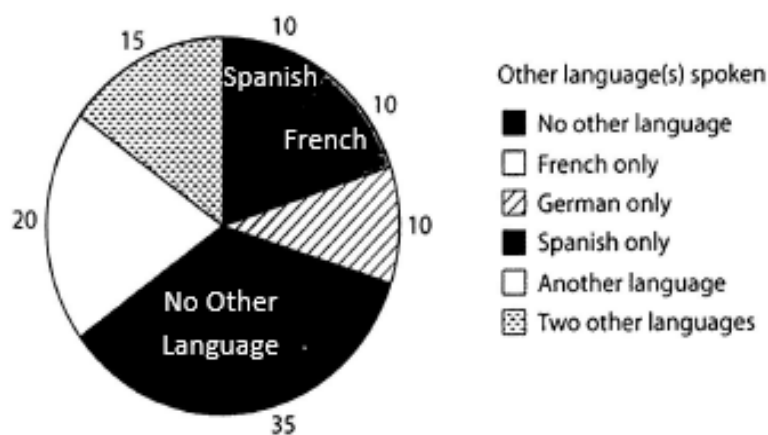
**TASK 1:** The charts below show the proportions of British students at one university in England who were able to speak other languages in addition to English, in 2000 and 2010.

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

% of British Students able to speak languages other than English, 2000



% of British Students able to speak languages other than English, 2010



**TASK 2:**

You should spend about 40 minutes on this task.

Write about the following topic:

***In some countries more and more people are becoming interested in finding out about the history of the house or building they live in.***

***What are the reasons for this? How can people research this?***

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

Write at least 250 words.