**SECTION I: LISTENING (40 points)**

**HƯỚNG DẪN PHẦN THI NGHE HIỂU**

* *Bài thi gồm có 3 phần.*
* *Mở đầu và kết thúc bài thi có nhạc hiệu.*
* *Mọi hướng dẫn cho thí sinh đã có trong bài nghe.*

**PART 1. *For questions 1 - 5, you will hear an interview with an archaeologist called Julian Radwinter. Choose the answer (А, В, C or D) which fits best according to what you hear. Write your answer in the numbered boxes provided (10 points).***

 ***You will hear the recording twice.***

**1**. Julian links his teenage archaeology interest to \_\_\_\_\_\_\_\_.

 **A**. a desire to please his father

 **B**. his natural sense of curiosity

 **C**. a need to make some spare money

 **D**. his unhappiness with farm life

**2**. What aspect of archaeology still excites Julian today?

 **A.** the methodical nature of much of the work

 **B**. the pleasure of solving ancient mysteries

 **C**. the chance to accurately assess the age of objects with precise tools

 **D.** the process of theorising with little information available

**3**. Julian believes that the way people see archaeology \_\_\_\_\_\_\_\_.

 **A.** fails to acknowledge its scientific value

 **B.** has been given a negative image by popular media

 **C.** doesn’t show the gradual nature of the research process

 **D.** has tended to concentrate on the physical hardships involved

**4**. How does Julian feel about his current research post?

 **A**. He regrets having relatively few opportunities to travel.

 **B**. He wishes his colleagues would take it more seriously.

 **C**. He admits that the problems can get him down.

 **D**. He suggests that it is relatively cost effective.

**5**. What does Julian hope to show as a result of his current research?

 **A**. population levels in England in different periods

 **B**. the length of time certain villages have existed

 **C**. how wider trends affected local communities

 **D**. the range of ancient agricultural methods

🖎***Write your answers here:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** |
|  |  |  |  |  |

**PART 2: *You’ll hear a guide at a tourist attraction called Oniton Hall talking to a group of visitors. Listen and answer questions 6 - 10. USE NO MORE THAN FIVE WORDS for each answer. (10 points)***

**6**. What did many past owners make changes to?

🖎……………………………………………………………………………………………

**7.** Who did Sir Edward Downes want to meet when he built Oniton Hall?

🖎……………………………………………………………………………………………

**8**. From whom can visitors learn about the work of servants in the past?

🖎……………………………………………………………………………………………

**9**. What is new for children at Oniton Hall?

🖎……………………………………………………………………………………………

**10**. Where can visitors see the collection of agriculture tools?

🖎……………………………………………………………………………………………

**PART 3: *For questions 11 - 20, listen to a news bulletin and complete each of the blanks with NO MORE THAN THREE WORDS OR A NUMBER. Write your answer in the numbered boxes provided. (20 points)***

Loujain al-Hathloul is a prominent activist who led the fight to lift the (**11**) \_\_\_\_\_\_\_\_ in the kingdom. In 2014, Loujain al-Hathloul got behind the wheel and drove from the United Arab Emirates into Saudi Arabia. This was considered a (**12**) \_\_\_\_\_\_\_\_ act in the ultraconservative kingdom, and it landed Hathloul in jail for a couple of months.

Jamal felt compelled to join Friends of Loujain simply as someone who has watched her over the years grow in her activism and someone who took a huge risk to advance women's rights in her country and now is facing the most (**13**) \_\_\_\_\_\_\_\_**.** She believed Hathloul was arrested because Crown Prince Mohammed Bin Salman did not want anyone else to get credit for lifting the driving ban. She was (**14**) \_\_\_\_\_\_\_\_ when Vogue magazine hyped the changes in the kingdom with the cover of a Saudi princess behind the wheel of a (**15)** \_\_\_\_\_\_\_\_.

Hathloul's situation got even more attention after journalist Jamal Khashoggi was killed at a Saudi consulate in Istanbul. Adam Coogle with Human Rights Watch says the allegations were (**16)** \_\_\_\_\_\_\_\_ by Hathloul's sister, Alia, who wrote an op-ed in The New York Times. She revealed that Loujain had told her parents that she had suffered (**17)** \_\_\_\_\_\_\_\_ torture, including beatings, waterboarding, whippings, as well as electric shocks.

 Saudi Minister of State for Foreign Affairs Adel al-Jubeir defends the woman's incarceration, saying they're a threat to national security. Last month, an (**18**) \_\_\_\_\_\_\_\_ Twitter thread about Hathloul and her husband, a comic, (**19)** \_\_\_\_\_\_\_\_ . Rudell says he was (**20**) \_\_\_\_\_\_\_\_ his tweet captured worldwide attention, including celebrities and politicians.

🖎***Write your answers here:***

|  |  |
| --- | --- |
| **11.**  | **16.**  |
| **12.**  | **17.**  |
| **13.**  | **18.**  |
| **14.**  | **19.**  |
| **15.**  | **20.**  |

**SECTION II: LEXICO – GRAMMAR (40 points)**

**PART 1: *For questions 21 - 40, choose the best answer (A, B, C or D) to each of the following questions. Write your answer in the boxes provided. (20 points)***

**21**. David was deported on account of his expired visa. He \_\_\_\_\_\_\_\_ it renewed.

**A**.must have had **B**.should have had

**C**.needn’t have had **D**.mightn’t have had

**22**. The instructor blew his whistle and \_\_\_\_\_\_\_\_.

**A**. off the runners were running **B**.off ran the runners

**C**.off were running the runners **D**.the runners runs off

**23**. Charlotte \_\_\_\_\_\_\_\_ the new girl immediately, within hours of meeting each other they were best of friends.

**A**. took issue with **B**. took heart from **C**.took a shine to **D**. took his hat off to

**24**. Parents often have to \_\_\_\_\_\_\_\_ large amounts of money so their children can take part in extracurricular sports activities.

**A**. mark down **B**. ring up **C.** shell out **D**. stock up

**25**. James kept trying to \_\_\_\_\_\_\_\_ his duties, but his manager told him if he didn’t start taking responsibility for his work he would have to leave the company.

**A**. beaver away **B**.weasel out of **C**. chicken out of **D**. clam up

**26.** I looked up from my newspaper and there he was, \_\_\_\_\_\_\_\_, Tim Trotter!

**A**. as large as life **B**. as right as rain  **C**. as fit as a fiddle **D**. as pale as a ghost

**27**. We were under no \_\_\_\_\_\_\_\_ about how difficult it would be to achieve our aims.

**A**. fantasies **B**. daydreams **C**. illusions **D**. deceptions

**28**. The manager hesitated to assign the job to the newcomer as he was \_\_\_\_\_\_\_\_.

 **A**. wet behind the ears **B**. ringing in your ears

 **C**. feeling your ears burning **D**. keeping your ears open

**29**. Margie was an \_\_\_\_\_\_\_\_ traveller; even dangerous conflict would not stop her from visiting a place.

**A**. intrepid **B**. inquisitive **C**. ingenious **D**. insightful

**30**. That he was using unscrupulous research methods only came out because his assistant \_\_\_\_\_\_\_\_ on him to the press.

**A**. ratted **B**. hounded **C**. fished **D**. bugged

**31.** \_\_\_\_\_\_\_\_ provided a living for nearly 90 percent of the population of the American colonies.

 **A**. What farming **B**. Farming was what **C**. Farming was **D**. What was farming

**32**. Naturally, her parents were thrilled to \_\_\_\_\_\_\_\_ when they found out she had passed the exam with an A.

**A**. shreds **B**. heaven **C**. goodness **D**. bits

**33**. Mike decided that election to the local council would provide a \_\_\_\_\_\_\_\_ to a career in national politics.

**A**. milestone **B**. springboard **C**. highway **D**. turning point

**34**. I had a \_\_\_\_\_\_\_\_ that something bad was going to happen to Katy and I rushed straight round to her house, where I found her unconscious.

**A**. premonition **B**. mind-set **C**. foresight **D**. forethought

**35.** He \_\_\_\_\_\_\_\_ enough energy to prepare a revision of his novel.

**A**. summoned up **B**. scaled up **C**. scouted up **D**. scraped up

**36.** I’m in a real \_\_\_\_\_\_\_\_ and I just don’t know what to do.

 **A**. hunch **B**. paradox **C**. query **D**. dilemma

**37**. He gave speeches all over the world to \_\_\_\_\_\_\_\_ support for his “Help the Homeless” Campaign.

**A**. trot out **B**. turn to **C**. weigh up **D**. whip up

**38.** Not being able to find my phone number is a pretty \_\_\_\_\_\_\_\_ excuse for not contacting me.

**A**. fragile **B**. frail **C**. faint **D**. feeble

**39**. The problem \_\_\_\_\_\_\_\_ because neither side was prepared to compromise.

**A**. amassed **B**. escalated **C**. proliferated **D**. enhanced

**40**. The view of what constitutes perfect bodily \_\_\_\_\_\_\_\_ changes from one generation to the next.

 **A**. scales **B**. ratios **C**. proportions **D**. percentages

🖎***Write your answers here:***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **21.** | **22.** | **23.** | **24.** | **25.** | **26.** | **27.** | **28.** | **29.** | **30.** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **31.** | **32.** | **33.** | **34.** | **35.** | **36.** | **37.** | **38.** | **39.** | **40.** |
|  |  |  |  |  |  |  |  |  |  |

**PART 2: *For questions 41 - 50, use the correct form of each of the words given in parentheses to fill in the blank. Write your answer in the numbered boxes provided. (20 points)***

|  |  |
| --- | --- |
| **41**. Due to the prolonged \_\_\_\_\_\_\_\_ , the goods arrived later than we had expected. | (**CONTAIN**) |
| **42**. Found in \_\_\_\_\_\_\_\_ condition, the house is intended to be demolished. | (**DOWN**) |
| **43**. It’s absolutely \_\_\_\_\_\_\_\_ why the council decided to close down the youth club. | (**EXPLAIN**) |
| **44**. The machine cannot work properly as a direct result of \_\_\_\_\_\_\_\_. | (**ALIGN**) |
| **45**. Rural areas have been traditionally thought of as a\_\_\_\_\_\_\_\_ of old-fashioned attitudes. | (**HOLD**) |
| **46**. Andy was \_\_\_\_\_\_\_\_ from the volunteer group due to his poor attitude. | (**COMMUNICATE**) |
| **47**. She stood there completely \_\_\_\_\_\_\_\_, I had no idea at all what she was thinking. | (**EXPRESS**) |
| **48**. It is easy to be\_\_\_\_\_\_\_\_, but we have a serious problem to deal with here.  | (**FLIP**) |
| **49**. Tonight, he faces the most \_\_\_\_\_\_\_\_ opponent of his boxing career.  | (**DOUBT**)  |
| **50**. Some parents were critical of attempts to \_\_\_\_\_\_\_\_ children in green ideology. | (**DOCTRINE**) |

🖎***Write your answers here:***

|  |  |
| --- | --- |
| **41.**  | **46.**  |
| **42.**  | **47.**  |
| **43.**  | **48.**  |
| **44.**  | **49.**  |
| **45.**  | **50.**  |

**SECTION III: READING (60 points)**

**PART 1: *For questions 51 - 60, read the following passage and choose the best answer (A, B, C, or D) best fits each blank. Write your answer in the numbered boxes provided. (10 points)***

Greenhouse gases are being released into the atmosphere 30 times faster than the time when the Earth experienced a (**51**) \_\_\_\_\_\_\_\_ episode of global warming. A study comparing the rate at which carbon dioxide and methane are being (**52**) \_\_\_\_\_\_\_\_ now, compared to 55 million years ago when global warming also occurred, has found dramatic differences in the speed of release. James Zachos, professor of earth sciences at the University of California, Santa Cruz, said the speed of the present build-up of greenhouse gases is far greater than during the global warming after the (**53**) \_\_\_\_\_\_\_\_ of the dinosaurs. "The emissions that caused this past episode of global warming probably lasted 10,000 years," Professor Zachos told the American Association for the Advancement of Science at a meeting ln St. Louis. "By burning fossil fuels, we are likely to emit the same amount over the next three centuries." He warned that studies of global warming events in the geological past (**54**) \_\_\_\_\_\_\_\_ the Earth's climate passes a (**55**) \_\_\_\_\_\_\_\_ beyond which climate change accelerates with the help of positive feedbacks - vicious circles of warming. Professor Zachos is a leading (**56**) \_\_\_\_\_\_\_\_ on the episode of global warming known as the palaeocene-eocene thermal maximum, when average global temperatures increased by up to 50C due to a massive release of carbon dioxide and methane.

His research into the deep ocean (**57**) \_\_\_\_\_\_\_\_ suggests at this time that about 4.5 billion tons of carbon entered the atmosphere over 10,000 years. “This will be the same amount of carbon released into the atmosphere from cars and industrial emissions over the next 300 years if present (**58**) \_\_\_\_\_\_\_\_ continue", he said. Although carbon can be released suddenly and naturally into the atmosphere from volcanic activity, it takes many thousands of years for it to be removed (**59**) \_\_\_\_\_\_\_\_ by natural processes. The ocean is capable of removing carbon, and quickly, but this natural capacity can be easily (**60**) \_\_\_\_\_\_\_\_ which is probably what happened 55 million years ago. "It will take tens of thousands of years before atmospheric carbon dioxide comes down to preindustrial levels," the professor said. "Even after humans stop burning fossil fuels, the effects will be long-lasting."

**51**. **A**. prearranged **B**. premier **C**. previous **D**. fundamental

**52**. **A**. emitted **B**. exhaled **C**. incorporated **D**. digested

**53**. **A**. dementia **B**. mark **C**. detachment **D**. demise

**54**. **A**. comment **B**. demolish **C**. compliment **D**. indicate

**55**. **A**. barricade **B**. abhorrence **C**. threshold **D**. perimeter

**56**. **A**. autocrat **B**. authority **C**. administrator **D**. proprietor

**57**. **A**. dusts **B**. sediments **C**. dirt **D**. powder

**58**. **A**. trends **B**. gadgets **C**. fads **D**. crazes

**59**. **A**. permanently **B**. competently **C**. temporarily **D**. bulkily

**60**. **A**. overcharged **B**. overstated **C**. overshadowed **D**. overwhelmed

🖎***Write your answers here:***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **51.** | **52.** | **53.** | **54.** | **55.** | **56.** | **57.** | **58.** | **59.** | **60.** |
|  |  |  |  |  |  |  |  |  |  |

**PART 2: *For questions 61 - 70, fill each blank of the numbered blanks in the passage with ONE suitable word. Write your answer in the numbered boxes provided. (15 points)***

**ANTI- FASHION**

 ***by Lisa Wilkinson***

If you ask me, it's high time they (**61**) \_\_\_\_\_\_\_\_ away with fashion. I've had enough of it. Just when I think I've finally got it (**62**) \_\_\_\_\_\_\_\_, I pop into a clothes shop to find that they've changed all the rules! One minute it's cool to wear brand new expensive stuff, and the next you have to take all that off and wear clothes that look as if they've been handed (**63**) \_\_\_\_\_\_\_\_ by your grandma. You can't win! Well, I've torn up my fashion magazines and adopted anti-fashion. It's an idea that has grown out of frustration and, to be honest, a lack of money to spend on yet another dress that I only wear once.

 I started by drawing (**64**) \_\_\_\_\_\_\_\_ a plan. I decided to line all my clothes up (**65**) \_\_\_\_\_\_\_\_, try them all on and give to charity anything that either didn't fit or suit me. Then, I wouldn't buy any more new clothes until something wore out. I went over my plan again, and knew that I would have to be tough with (**66**) \_\_\_\_\_\_\_\_ . After all, I'd spent a lot of money on some of that stuff. Finally, I plucked up the courage to do it. It felt a little bit like being a child again, dressing up in your mum's clothes, but I also felt a great sense of (**67**) \_\_\_\_\_\_\_\_.

That was a year ago and, although I occasionally see something and think, 'Oh, that's gorgeous!', I haven't bought any clothes. If you ever come over to my house and I (**68**) \_\_\_\_\_\_\_\_ you around my bedroom, you might see last season's fashions, (**69**) \_\_\_\_\_\_\_\_ you'll also see a woman who feels free. And that's (**70**) \_\_\_\_\_\_\_\_. Do you think it'll catch on?

🖎***Write your answers here:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **61.**   | **62.**   | **63.**   | **64.**   | **65.**   |
| **66.**   | **67.**   | **68.**   | **69.**   | **70.**   |

**PART 3: *For questions 71 - 80, read the following passage and choose the answer A, B, C, or D which fits best according to the text. Write your answer in the numbered boxes provided.******(10 points)***

**DESERT FORMATION**

**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.

**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.

**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 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.

 **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.

**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 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 many 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.

**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.

**71**. The word **threatened** in the passage is closest in meaning to \_\_\_\_\_\_\_\_\_\_\_\_.

 **A**. restricted **B**. endangered **C**. prevented **D**. rejected

**72**. According to paragraph 3, which of the following consequences for soil does the loss of natural vegetation have?

 **A**. Increased stony content **B**. Reduced water absorption

 **C**. Increased numbers of spaces in the soil **D**. Reduced water runoff

**73**. 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

**74**. The word **progressively** in the passage is closest in meaning to \_\_\_\_\_\_\_\_\_\_\_\_.

 **A**. openly **B**. impressively **C**. objectively **D**. increasingly

**75**. 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 to the particular area

 **C**. Removal of the original vegetation

 **D**. Excessive use of dried animal waste

**76**. The phrase **devoid of** in the passage is closest in meaning to \_\_\_\_\_\_\_\_\_\_\_\_.

 **A**. consisting of **B**. hidden by **C**. except for **D**. lacking in

**77**. 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

**78**. All of the following are mentioned in the passage as contributing to desertification **EXCEPT** \_\_\_\_\_\_\_\_\_\_\_\_.

 **A**. soil erosion **B**. global warming

 **C**. insufficient irrigation **D**. the raising of livestock

**79**. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage?

 **A**. Desertification is a significant problem because it is so hard to reverse and affects large areas of land and great numbers of people.

 **B**. Slowing down the process of desertification is difficult because of population growth that has spread over large areas of land.

 **C**. The spread of deserts is considered a very serious problem that can be solved only if large numbers of people in various countries are involved in the effort.

 **D**. Desertification is extremely hard to reverse unless the population is reduced in the vast areas affected.

**80**. Which of the following can be inferred from the passage that the author most likely believes 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.

🖎***Write your answers here:***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **71.** | **72.** | **73.** | **74.** | **75.** | **76.** | **77.** | **78.** | **79.** | **80.** |
|  |  |  |  |  |  |  |  |  |  |

**PART 4: *For questions 81 - 90, read the passage and do the tasks that follow. Write your answer in the numbered boxes provided. (10 points)***

**STICKING POWER**

*Want to walk on the ceiling?
All it takes is a bit of fancy footwork*

**A.**  If Keilar Autumn, an expert in Biomechanik at Clark College in Portland, Oregon, has his way, the first footprints on Mars won’t be human. They’ll belong to a gecko. Gecko toes have legendary sticking power – and the Clark College scientist would like to see the next generation of Martian robots walking about on gecko-style feet. A gecko can whiz up the smoothest wall and hang from the ceiling by one foot, with no fear of falling.

**B.**   Autumn is one of a long line of researchers who have puzzled over the gecko’s gravity-defying footwork. Earlier this year, he and his colleagues discovered that the gecko’s toes don’t just stick, they bond to the surface beneath them. Engineers are already trying to copy the gecko’s technique – but reptilian feet are not the only ones they are interested in.

**C.**    Some of the most persistent ‘hanging’ creatures are insects. They can defy not just gravity, but gusts of wind, raindrops and a predator’s attempt to prize them loose. Recent discoveries about how they achieve this could lead to the development of quick-release adhesives and miniature grippers, ideal for manipulating microscopic components or holding tiny bits of tissue together during surgery. ‘There are lots of ways to make two surfaces stick together, but there are very few which provide precise and reversible attachment,’ says Stas Gorb, a biologist in Tübingen, Germany, working on the problem.

**D.**     Geckos and insects have both perfected ways of doing this, and engineers and scientists would dearly love to know how. Friction certainly plays a part in assisting horizontal movement, but when the animal is running up a slope, climbing vertically or travelling upside down, it needs a more powerful adhesive. Just what that adhesive is has been hotly debated for years. Some people suggested that insects had micro-suckers. Some reckoned they relied on electrostatic forces. Others thought that intermolecular forces between pad and leaf might provide a firm foothold.

**E.**     Most of the evidence suggests that insects rely on ‘wet adhesion’, hanging on with the help of a thin film of fluid on the bottom of the pad. Insects often leave tiny trails of oily footprints. Some clearly secrete a fluid onto the ‘soles’ of their feet. And they tend to lose their footing when they have their feet cleaned or dried.

**F.**    This year, Walter Federle, an entomologist at the University of Würzburg, showed experimentally that an insect’s sticking power depends on a thin film of liquid under its feet. He placed an ant on a polished turntable inside the rotor of a centrifuge, and switched it on. At slow speeds, the ant carried on walking unperturbed. But as the scientist slowly increased the speed, the pulling forces grew stronger and the ant stopped dead, legs spread out and all six feet planted firmly on the ground. At higher speeds still, the ant’s feet began to slide. ‘This can only be explained by the presence of a liquid,’ says Federle. ‘If the ant relied on some form of dry adhesion, its feet would pop abruptly off the surface once the pull got too strong.’

**G.**But the liquid isn’t the whole story. What engineers really find exciting about insect feet is the way they make almost perfect contact with the surface beneath. ‘Sticking to a perfectly smooth surface is no big deal,’ says Gorb. But in nature, even the smoothest-looking surfaces have microscopic lumps and bumps. For a footpad to make good contact, it must follow the contours of the landscape beneath it. Flies, beetles and earwigs have solved the problem with hairy footpads, with hairs that bend like the bristles of a toothbrush to accommodate the troughs below.

**H.**    Gorb has tested dozens of species with this sort of pad to see which had the best stick. Flies resist a pull of three or four times their body weight – perfectly adequate for crossing the ceiling. But beetles can do better and the champion is a small, blue beetle with oversized yellow feet, found in the south-eastern parts of the US.

**I.**    Tom Eisner, a chemical ecologist at Cornell University in New York, has been fascinated by this beetle for years. Almost 30 years ago, he suggested that the beetle clung tight to avoid being picked off by predators – ants in particular. When Eisher measured the beetle’s sticking power earlier this year, he found that it can withstand pulling forces of around 80 times its own weight for about two minutes and an astonishing 200 times its own weight for shorter periods. ‘The ants give up because the beetle holds on longer than they can be bothered to attack it,’ he says.

**Questions 81-84**

***Look at the following statements (Questions 81-84) and the list of scientists below. Match each statement with the correct scientist A, B, C or D.***

**List of Scientists**

**A**     Kellar Autumn

**B**     Stas Gorb

**C**     Walter Federte

**D**     Tom Eisher

**81.** Some insects use their ability to stick to surfaces as a way of defending themselves.
**82.** What makes sticky insect feet special is the fact that they can also detach themselves easily from a surface.
**83.** A robot with gecko-style feet would be ideal for exploring other planets.
**84.** Evidence shows that in order to stick, insect feet have to be wet.

**Questions 85-87**
***The passage has ten paragraphs A-I. Which paragraph contains the following information?***

**85.** some of the practical things a gecko-style adhesive could be used for.

**86.** three different theories scientists have had about how insect feet stick.
**87.** examples of remarkable gecko movements.

**Questions 88-90**
***Complete each sentence from 88 to 90 with the correct ending A-F below.***

**A** stick to surfaces in and out of water.

**B** are washed and dried.

**C** start to slip across the surface.

**D** resist a pull of three times their body weight. **E** leave yellow footprints.

**F** have hairy footpads.

**88.** Insect feet lose their sticking power when they \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**89.** If you put ants on a rapidly rotating object, their feet \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**90.** Beetles can stick to uneven surfaces because they \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

🖎***Write your answers here:***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **81.** | **82.** | **83.** | **84.** | **85.** | **86.** | **87.** | **88.** | **89.** | **90.** |
|  |  |  |  |  |  |  |  |  |  |

**Part 5: *For questions 91 - 100, read the article and choose from the places (A - E) according to the statements. Write your answer in the numbered boxes provided. Some places may be chosen more than once and given in any order. (15 points)***

**A. University Museum of Classical Archaeology**

The Museum of Classical Archaeology is one of the few surviving collections of casts of Greek and Roman sculpture in the world, comprising over six hundred works. The first thing to remember about the collection is that nothing here is genuine. All the sculptures are accurate replicas cast from the originals, mostly in the late 19th and early 20th centuries. The Museum is housed in a purpose-built gallery with excellent natural light. The advantages of plaster casts are many: groups of sculptures originally set up together but now split between various museums all over Europe can be viewed together as originally intended. Nearly all the most celebrated works of Greek and materials. Roman sculpture can be viewed in one afternoon.

**B. Cambridge Darkroom**

Cambridge Darkroom is a centre for photography with community darkrooms and a gallery showing a varied exhibition of photography and related media. We regularly run courses and workshops for people of all ages and abilities, including our popular Beginner's Course, a shorter Induction Course and Master Classes with invited photographers. We have a membership scheme whereby all our members can use our darkrooms. We also encourage young photographers (aged 12 to 16) to develop their skills with our Young Members scheme, led by our resident photographer. We stock photographic books and art magazines and carry a full range of photographic materials.

**C. Sedgwick Museum of Geology**

The Sedgwick Museum houses a magnificent collection of fossil animals and plants, rocks and minerals of all geological ages, and from all parts of the world. It also houses Britain's oldest intact geological collection, that of Dr John. Woodward (1665-1728). It includes nearly 10,000 rare and interesting specimens stored in their original early 18th century cabinets. Adam Sedgwick was Professor of Geology and keeper of the Woodwardian collection. Throughout his long life, he added enormously to the collections, laying the foundations of a truly outstanding museum. The collection is arranged by geological age so that the major changes in life on Earth can be traced through time.

The new Whewell Gallery houses the beautiful minerals and gems of the collection. The displays are accompanied by full explanatory labels to explain both their nature and modern use.

**D. The Cambridge University Collection of Air Photographs**

There are over 400,000 oblique and vertical air photographs in the collection, taken by members of the university's staff over the past 45 years. The University has its own aircraft based at Cambridge Airport and undertakes photographic work throughout Great Britain. The photographs are of considerable general interest as a detailed, year-by-year record of the landscape, showing both the natural environment and the effects of human activity from prehistoric times to the present day. There is a small display in the entrance hall and the knowledgeable library staff will be happy to deal with particular enquiries. The photographs cannot be borrowed but copies can normally be purchased. These are made to order and ordinarily take about a month.

**E. Cambridge Medieval Brass Rubbing Centre**

Cambridge Brass Rubbing Centre, the second oldest and longest surviving centre in the world, is one of the region's most unusual tourist attractions. Hours of enjoyment are to be had creating wall hangings by rubbing one of over a hundred different brass plates off tombs of medieval knights and ladies. By formulating resin copies, known as facsimiles, the centre has made it possible to preserve the originals and still make brass rubbing an accessible pastime to all. The brass plates, as an alternative means of memorial to the tomb statue, spread from Germany across medieval Europe and Scandinavia. Through various revolutions most of the beautiful brasses were destroyed. The vast majority of remaining brasses are to be found in Britain and the widest range of examples can be seen at the Cambridge Centre.

🖎***Write your answers here:***

|  |  |  |
| --- | --- | --- |
| **QUESTION** | **PLACE** | **STATEMENT** |
| **91.** |  | The means of displaying the exhibits has not changed. |
| **92.** |  |  | If you spend some time here, you might produce something of decorative value. |
| **93.** |  | Arrangements can be made to buy copies of the exhibits. |
| **94.** |  |  | The exhibits are arranged chronologically. |
| **95.** |  | The arrangement of the exhibits saves the visitor time. |
| **96.** |  |  | Visitors have access to reproductions rather than originals. |
| **97.** |  | The present collection has evolved from a much earlier one. |
| **98.** |  | Here you will find the best selection of exhibits of this type in Europe. |
| **99.** |  | This organisation provides a wide range of learning opportunities. |
| **100.** |  | Exhibitions of this type are now rare. |

**SECTION IV: WRITING (60 points)**

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| **Điểm Part 1 bằng số:** **Điểm Part 1 bằng chữ:** ........................................ |  | **SỐ PHÁCH**(Do chủ tịch HĐ chấm thi ghi) |
| ***Chữ ký giám khảo 1*** | ***Chữ ký giám khảo 2*** |  |
|  |  |  |

**PART 1: (20 points)**

***The charts below show the percentages of readers who preferred to read certain types of books at A & Z library in 2009.***

***Summarize the information by selecting and reporting the main features, and make comparisons where relevant. You should write about 140 words.***

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| **Điểm Part 2 bằng số:** **Điểm Part 2 bằng chữ:** ........................................ |  | **SỐ PHÁCH**(Do chủ tịch HĐ chấm thi ghi) |
| ***Chữ ký giám khảo 1*** | ***Chữ ký giám khảo 2*** |  |
|  |  |  |

**PART 2: (40 points)**

***Write an essay of about 350 words on the following topic:***

Many people think that the development of artficial intelligence has a positive impact on our lives. Others are worried that it will replace some work positions such as translators, writers or even teachers.

Discuss both views and give your own opinion.

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