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Academic Reading Practice Test 49

IELTSFEVER ACADEMIC READING PRACTICE TEST 49

Reading passage 1 – Spend 20 minutes

Man or Machine

MIT's humanoid robots showcase both human creativity and contemporary pessimism.

Humanoid robots were once the stuff of political and science fiction. Today, scientists working in Japan and the USA have been turning fiction into a physical reality.

A. During July 2003, the Museum of Science in Cambridge, Massachusetts exhibited what Honda calls 'the world's most advanced humanoid robot', ASIMO (the Advanced Step in Innovative Mobility). Honda's brainchild is on tour in North America and delighting audiences wherever it goes. After 17 years in the making, ASIMO stands at four feet tall, weighs around 115 pounds and bob like a child in an astronaut's suit. Though it is difficult to see ASIMO's face at a distance, on closer inspection it has a smile and two large 'eyes' that conceal cameras. The robot cannot work autonomously — its actions are 'remote controlled' by scientists through the computer in its backpack. Yet watching ASMIO perform at a show in Massachusetts it seemed uncannily human. The audience cheered as ASIMO walked forwards and backwards, side to side and up and downstairs. It can even dance to the Hawaiian Hula.

B. While the Japanese have made huge strides in solving some of the engineering problems of human kinetics and bipedal movements, for the past 10 years scientists at MIT's former Artificial Intelligence (Al) lab (recently renamed the Computer Science and Artificial Intelligence Laboratory, CSAIL) have been making robots that can behave like humans and interact with humans. One of MIT's robots, Kismet, is an anthropomorphic head and has two eyes (complete with eyelids), ears, a mouth, and eyebrows. It has several facial expressions, including happy, sad, frightened and disgusted. Human interlocutors are able to read some of the robot's facial expressions, and often change their behaviour towards the machine as a result - for example, playing with it when it appears 'sad'. Kismet is now in MIT's museum, but the ideas developed here continue to be explored in new robots.

C. Cog (short for Cognition) is another pioneering project from MIT's former Al lab. Cog has a head, eyes, two arms, hands and a torso — and its proportions were originally measured from the body of a researcher in the lab. The work on Cog has been used to test theories of embodiment and developmental robotics, particularly getting a robot to develop intelligence by responding to its environment via sensors, and to learn through these types of interactions. This approach to Al was thought up and developed by a team of students and researchers led by the head of MIT's former Al lab, Rodney Brooks (now head of CSAIL), and represented a completely new development.

D. This work at MIT is getting furthest down the road to creating human-like and interactive robots. Some scientists argue that ASIMO is a great engineering feat but not an intelligent machine — because it is unable to interact autonomously with unpredictabilities in its

environment in meaningful ways, and learn from experience. Robots like Cog and Kismet and new robots at MIT's CSAIL and media lab, however, are beginning to do this.

E. These are exciting developments. Creating a machine that can walk, make gestures and learn from its environment is an amazing achievement. And watch this space: these achievements are likely rapidly to be improved upon. Humanoid robots could have a plethora of uses in society, helping to free people from everyday tasks. In Japan, for example, there is an aim to create robots that can do the tasks similar to an average human, and also act in more sophisticated situations as firefighters, astronauts or medical assistants to the elderly in the workplace and in homes — partly in order to counterbalance the effects of an ageing population.

F. So in addition to these potentially creative plans there lies a certain dehumanisation. The idea that companions can be replaced with machines, for example, suggests a mechanical and degraded notion of human relationships. On one hand, these developments express human creativity — our ability to invent, experiment, and to extend our control over the world. On the other hand, the aim to create a robot like a human being is spurred on by dehumanised ideas — by the sense that human companionship can be substituted by machines; that humans lose their humanity when they interact with technology; or that we are little more than surface and ritual behaviours, that can be simulated with metal and electrical circuits.

G. The tension between the dehumanised and creative aspects of robots has long been explored in culture. In Karel Capek's *Rossum's Universal Robots*, a 1921 play in which the term 'robot' was first coined, although Capek's robots had human-like appearance and behaviour, the dramatist never thought these robots were human. For Capek, being human was about much more than appearing to be human. In part, it was about challenging a dehumanising system, and struggling to become recognised and given the dignity of more than a machine. A similar spirit would guide us well through twenty-first century experiments in robotics.

Questions 1-7

Reading Passage 1 has seven paragraphs, A-G. *Which paragraph contains the following information? Write the correct letter, A-G, in boxes 1-7 on your answer sheet.*

1. The different uses of robots in society
2. How robot is used in the artistic work
3. A robot that was modelled on an adult
4. A comparison between two different types of robots
5. A criticism of the negative effects of humanoid robots on the society
6. A reference to the first use of the word "robot"
7. People feel humanity may be replaced by robots

Questions 8-13

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage. Write your answers in boxes 8-13 on your answer sheet.*

It took Honda 8……years to make ASIMO, a human-looking robot that attracted broad interests from audiences. Unlike ASIMO, which has to be controls through a computer installed in the 9……., MIT's scientists aimed to make robot that can imitate human behavior and 10…….with humans. One of such particular inventions can express its own feelings through 11…… Another innovative project is a robot called 12……..,, which is expected to learn from its environment to gain some 13……

READING PASSAGE 2

You should spend about 20 minutes on ***Questions 14-26***

California's Age of Megafires

Drought, housing expansion, and oversupply of tinder make for bigger, hotter fires.

There's a reason fire squads now battling more than a dozen blazes in southern California are having such difficulty containing the flames, despite better preparedness than ever and decades of experience fighting fires fanned by the notorious Santa Ana winds. The wildfires themselves, experts say, generally are hotter, move faster, and spread more erratically than in the past.

Megafires, also called "siege fires," are the increasingly frequent blazes that burn 500,000 acres or more — 10 times the size of the average forest fire of 20 years ago. One of the current wildfires is the sixth biggest in California ever, in terms of acreage burned, according to state figures and news reports.

The short-term explanation is that the region, which usually has dry summers, has had nine inches less rainfall than normal this year. Longer term, climate change across the West is leading to hotter days on average and longer fire seasons. The trend to more superhot fires, experts say, has been driven by a century-long policy of the US Forest Service to stop wildfires as quickly as possible. The unintentional consequence was to halt the natural eradication of underbrush, now the primary fuel for megafires.

Three other factors contribute to the trend, they add. First is climate change marked by a 1-degree F rise in average yearly temperature across the West. Second is a fire season that on average is 78 days longer than in the late 1980s. Third is increased building of homes and other structures in wooded areas. "We are increasingly building our homes ... in fireprone ecosystems," says Dominik Kulakowski, adjunct professor of biology at Clark University Graduate School of Geography in Worcester, Mass. Doing that "in many

of the forests of the Western US ... is like building homes on the side of an active volcano."

In California, where population growth has averaged more than 600,000 a year for at least a decade, housing has pushed into such areas. "What once was open space is now residential homes providing fuel to make fires burn with greater intensity," says Terry McHale of the California Department of Forestry firefighters union. "With so much dryness, so many communities to catch fire, so many fronts to fight, it becomes an almost incredible job."

That said, many experts give California high marks for making progress on preparedness since 2003, when the largest fires in state history scorched 750,000 acres, burned 3,640 homes, and killed 22 people. Stung then by criticism of bungling that allowed fires to spread when they might have been contained, personnel are meeting the peculiar challenges of neighborhood and canyon-hopping fires better than in recent years, observers say.

State promises to provide newer engines, planes, and helicopters have been fulfilled. Firefighters unions that then complained of dilapidated equipment, old fire engines, and insufficient blueprints for fire safety are now praising the state's commitment, noting that funding for firefighting has increased despite huge cuts in many other programs. We are pleased that the Schwarzenegger administration has been very proactive in its support of us and come through with budgetary support of the infrastructure needs we have long sought," says Mr. McHale with the firefighters union.

Besides providing money to upgrade the fire engines that must traverse the mammoth state and wind along serpentine canyon roads, the state has invested in better command-and-control facilities as well as the strategies to run them. "In the fire sieges of earlier years, we found out that we had the willingness of mutual-aid help from other jurisdictions and states, but we were not able to communicate adequately with them," says Kim Zagaris, chief of the state's Office of Emergency Services, fire and rescue branch. After a 2004 blue-ribbon commission examined and revamped those procedures, the statewide response "has become far more professional and responsive," he says.

Besides ordering the California National Guard on Monday to make 1,500 guardsmen available for firefighting efforts, Gov. Arnold Schwarzenegger asked the Pentagon to send all available Modular Airborne Fighting Systems to the area. The military Lockheed

C-130 cargo/utility aircraft carry a pressurized 3,000-gallon tank that can eject fire retardant or water in fewer than five seconds through two tubes at the rear of the plane. This load can cover an area 1/4-mile long and 60 feet wide to create a fire barrier. Governor Schwarzenegger also directed 2,300 inmate firefighters and 170 custody staff from the California Department of Corrections and Rehabilitation to work hand in hand with state and local firefighters.

Residents and government officials alike are noting the improvements with gratitude, even amid the loss of homes, churches, businesses, and farms. Despite such losses, there is a sense that the speed, dedication, and coordination of firefighters from several states and jurisdictions are resulting in greater efficiency than in past "siege fire" situations.

"I am extraordinarily impressed by the improvements we have witnessed between the last big fire and this," says Ross Simmons, a San Diego-based lawyer who had to evacuate both his home and business on Monday, taking up residence at a Hampton Inn 30 miles south of his home in Rancho Bernardo. After fires consumed 172,000 acres there in 2003, the San Diego region turned communitywide soul-searching into improved building codes, evacuation procedures, and procurement of new technology. Mr. Simmons and neighbors began receiving automated phone calls at 3:30 a.m. Monday morning telling them to evacuate. "Notwithstanding all the damage that will be caused by this, we will not come close to the loss of life because of what we have ... put in place since then," he says.

Questions 14-18

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage. Write your answers in boxes 14-18 on your answer sheet.*

Fighting Californian wildfires is still not an easy task because the fires the fire-fighters now face 14…….in more unpredictable manner in addition to the raging heat and faster speed than ever. Megafires, as they are called, are often 15…….bigger than average forest fire. The reasons for this include 16……..below the average and the extended 17……due to climate change. And according to experts, the government policy has also contributed to this by accidentally making the underbrush the 18 ……. for megafires.

Questions 19-23

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

TRUE *if the statement agrees with the information*

FALSE *if the statement contradicts the information*

NOT GIVEN *if there is no information on this*

19 Open space has been disappearing in the past 10 years.

20 The equipment firefighters use today is better than before.

21 The state recruited new firefighters.

22 In the early years, no other states wished to help California to fight the fire.

23 The 2004 blue-ribbon commission did not make any achievements.

Questions 24-26

Choose the correct letter. A, B, C or D. Write your answers in boxes 24-26 on your answer sheet.

24. Why does the author mention Governor Schwarzenegger, California National Guard, Pentagon and the California Department of Corrections and Rehabilitation?

A. To show the active involvement of the Schwarzenegger's administration
B. To illustrate the cross-state and cross-jurisdiction cooperation in fire-fighting
C. To demonstrate how the military is more effective at fighting fire than others
D. To give an example of how resources should be mobilised to fight fires

25. How do the locals feel about the improvements made by the state government?

A. glad
B. unsatisfied
C. unconcerned
D. bitter

26. According to Ross Simmons, which of the following statements is true?

A. It's harder to evacuate people in daytime.
B. People refuse to improve their house in fire resisting ability.
C. People can hardly believe the magnitude of damage today.
D. People are less likely to die in fires now

READING PASSAGE 3 *Spend about 20 minutes*

The Rainmaker

Sometimes ideas just pop up out of the blue. Or in Charlie Paton's case, out of the rain. "I was in a bus in Morocco travelling through the desert," he remembers. "It had been raining and the bus was full of hot, wet people. The windows steamed up and I went to sleep with a towel against the glass. When I woke, the thing was soaking wet. I had to wring it out. And it set me thinking. Why was it so wet?"

The answer, of course, was condensation. Back home in London, a physicist friend, Philip Davies, explained that the glass, chilled by the rain outside, had cooled the hot humid air inside the bus below its dew point, causing droplets of water to form on the inside of the window. Intrigued, Paton — a lighting engineer by profession — started rigging up his own equipment. "I made my own solar stills. It occurred to me that you might be able to produce water in this way in the desert, simply by cooling the air. I wondered whether you could make enough to irrigate fields and grow crops."

Today, a decade on, his dream has taken shape as a giant greenhouse on a desert island off Abu Dhabi in the Persian Gulf — the first commercially viable version of his "seawater greenhouse". Local scientists, working with Paton under a licence from his company Light Works, are watering the desert and growing vegetables in what is basically a giant dew-making machine that produces fresh water and cool air from sun and seawater. In awarding Paton first prize in a design competition two years ago, Marco Goldschmied, president of the Royal Institute of British Architects, called it "a truly original idea which has the potential to impact on the lives of millions of people living in coastal water-starved areas around the world".

The design has three main parts (see Graphic). The greenhouse faces into the prevailing wind so that hot, dry desert air blows in through the front wall of perforated cardboard, kept wet and cool by a constant trickle of seawater pumped up from the nearby shoreline. The evaporating seawater cools and moistens the air. Last June, for example, when the temperature outside the Abu Dhabi greenhouse was 46 °C, it was in the low 30s inside. While the air outside was dry, the humidity in the greenhouse was 90 per cent. The cool, moist air allows the plants to grow faster, and because much less water evaporates from the leaves their demand for moisture drops dramatically. Paton's crops thrived on a single litre of water per square metre per day, compared to 8 litres if they were growing outside.

The second feature also cools the air for the plants. Paton has constructed a double-layered roof with an outer layer of clear polythene and an inner, coated layer that reflects infrared light. Visible light can stream through to maximise photosynthesis, while heat from the infrared radiation is trapped in the space between the layers, away from the plants.

At the back of the greenhouse sits the third element, the main water-production unit. Just before entering this unit, the humid air of the greenhouse mixes with the hot, dry air from between the two layers of the roof. This means the air can absorb more moisture as it passes through a second moist cardboard wall. Finally, the hot saturated air hits a condenser. This is a metal surface kept cool by still more seawater - the equivalent of the window on Paton's Moroccan bus. Drops of pure distilled water form on the condenser and flow into a tank for irrigating the crops.

The greenhouse more or less runs itself. Sensors switch everything on when the sun rises and alter flows of air and seawater through the day in response to changes in temperature, humidity and sunlight. On windless days, fans ensure a constant flow of air through the greenhouse. "Once it is tuned to the local environment, you don't need anyone there for it to work," says Paton. "We can run the entire operation off one 13-amp plug, and in future we could make it entirely independent of the grid, powered from a few solar panels."

The net effect is to evaporate seawater into hot desert air, then recondense the moisture as fresh water. At the same time, cool moist air flows through the greenhouse to provide ideal conditions for the crops. The key to the seawater greenhouse's potential is its unique combination of desalination and air conditioning. By tapping the power of the sun it can cool as efficiently as a 500-kilowatt air conditioner while using less than 3 kilowatts of electricity. In practice, it evaporates 3000 litres of seawater a day and turns it into about 800 litres of fresh water —just enough to irrigate the plants. The rest is lost as water vapour.

Critics point out that construction costs of £25 per square metre mean the water is twice as expensive as water from a conventional desalination plant. But the comparison is misleading, says Paton. The natural air conditioning in the greenhouse massively increases the value of that water. Because the plants need only an eighth of the water used by those grown conventionally, the effective cost is only a quarter that of water from a standard desalinator. And costs should plummet when mass production begins, he adds.

Best of all, the greenhouses should be environmentally friendly. "I suppose there might be aesthetic objections to large structures on coastal sites," says Harris, "but it is a clean technology and doesn't produce pollution or even large quantities of hot water."

Questions 27-31

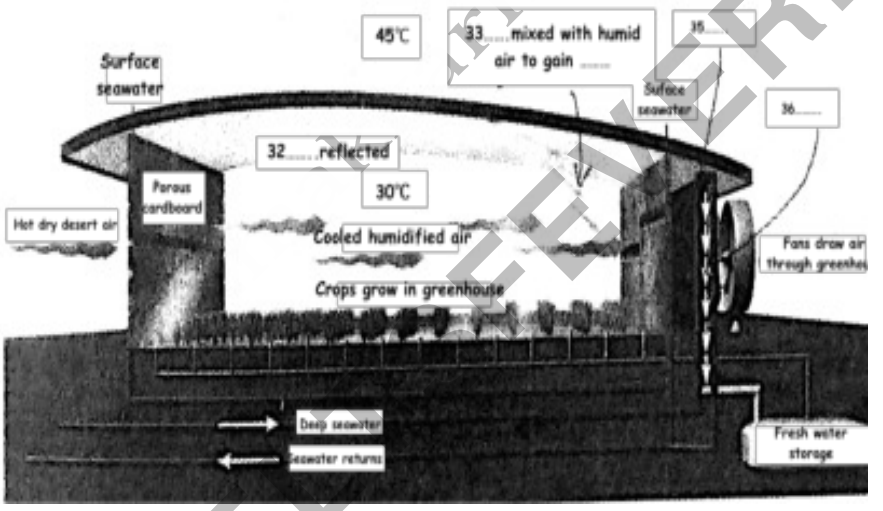
Do the following statements agree with the information given in Reading Passage 3?

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

27 Paton came up with the idea of making water in desert by pure accident.
28 The bus Paton rode in had poor ventilation because of broken fans.
29 Paton woke up from sleep to discover that his towel was wet.
30 Paton started his greenhouse project immediately after meeting up with his friend.
31 Paton later opened his own business in the Persian Gulf.

Questions 32-36

Complete the diagram below using NO MORE THAN TWO WORDS from the passage. Write your answers in boxes 32-36 on your answer sheet.



Questions 37-40

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage. Write your answers in boxes 37-40 on your answer sheet.*

The greenhouse Paton built is installed with 37……..to keep the air flowing if the wind stands still, and it is expected in the future to rely on electricity provided solely by 38…… Despite the high construction costs compared to desalination plant, the plants grown in Paton's greenhouse need much less water, and if produced in large quantities the 39…….could be reduced remarkably. In addition to all these advantages, it is also 40……, because it is clean and pollution free.