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**Academic**

**Reading**

**Practice Test**

**55**

## Reading Passage 1

### Scratching the Surface

They are insidious skin parasites, infesting the occupants of factories and offices. They cause itching, prickling and crawling sensations in the skin that are almost untreatable. These creatures may only exist in the mind, but their effects are real and infectious.

The classic case occurred in a US laboratory in 1966. After new equipment was installed, workers started to suffer from itching and sensations of insects crawling over them. Complaints multiplied and the problem, attributed to 'cable mites', started to spread to relatives of the victims. A concerted effort was made to exterminate the mites using everything from DDT and mothballs to insecticide and rat poison.

Nothing worked. Thorough examination by scientific investigators could not locate any pests, or even signs of actual parasite attacks. However, they did find small particles of rockwool insulation in the air, which could cause skin irritation. A cleaning programme was introduced and staff were assured the problem had been solved. The cable mite infestation disappeared.

Another 1960s case occurred in a textile factory, where workers complained of being bitten by insects brought into the factory in imported cloth. Dermatitis swept through the workforce, but it followed a curious pattern. Instead of affecting people in one particular part of the factory, the bugs seemed to be transmitted through employees' social groups. No parasites could be found.

A third infestation spread through office staff going through dusty records that had lain untouched for decades. They attributed their skin problems to 'paper mites', but the cause was traced to irritation from paper splinters.

These are all cases of illusions of parasitosis, where something in the environment is misinterpreted as an insect or other pest. Everyone has heard of delirium tremens, when alcoholics or amphetamine users experience the feeling of insects crawling over their skin, but other factors can cause the same illusion. Static electricity, dust, fibres, and chemical solvents can all give rise to imaginary insects. The interesting thing is that they spread. The infectious nature of this illusion seems to be a type of reflex contagion. Yawn, and others start yawning. If everyone around you laughs, you laugh. Start scratching, and colleagues will scratch, too.

\* Dr Paul Marsden is managing editor of the journal of Memetics, the study of infectious ideas. He suggests that this type of group behaviour may have had a role to play in human evolution. In our distant past, one individual scratching would have alerted others that there were biting insects or parasites present. This would prime them to scratch itches of their own. Anyone who has been bitten several times by mosquitoes before they realized it will recognize the evolutionary value of this kind of advance warning. The outbreak of mass scratching may also promote mutual grooming, which is important in the necessary bonding of primate groups.

The problem comes when the reflex contagion is not related to a real threat. Normally, everyone would soon stop scratching, but people may unconsciously exaggerate symptoms to gain attention, or because it gets them a break from unappealing work. The lab workers were scanners, who spent the day laboriously examining the results of bubble-chamber tests; textile workers and clerical staff poring over records would also have found what they had to do quite tedious. Add the factor that skin conditions are notoriously susceptible to psychological influence, and it is easy to see how a group dynamic can keep the illusory parasites going.

Treatment of the condition is difficult, since few will accept that their misreading of the symptoms is the result of what psychologists call a hysterical condition. In the past, the combination of removal of irritants and expert reassurance was enough. However, these days, there is a mistrust of conventional medicine and easier access to support groups. Sufferers can reinforce each

other's illusions over the Internet, swapping tales of elusive mites that baffle science. This could give rise to an epidemic of mystery parasites, spreading from mind to mind like a kind of super virus. Only an awareness of the power of the illusion can stop it. *You can stop scratching now*

**Questions 1-5**

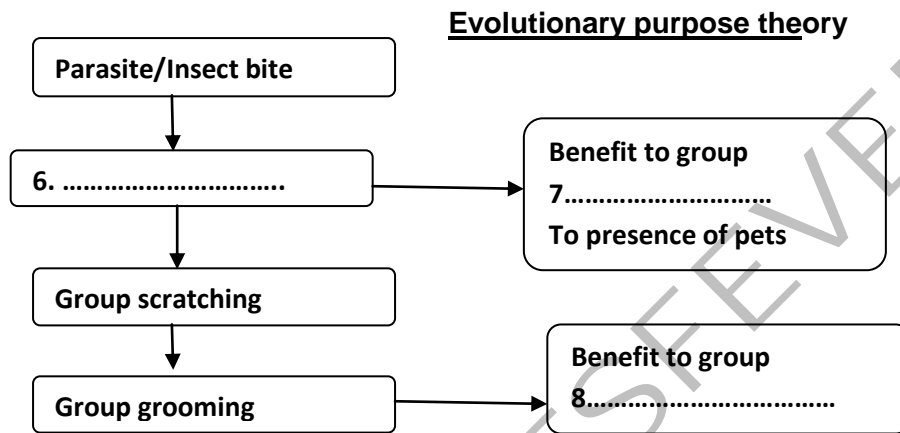
Classify statements 1-5 according to whether they apply to

- A. the laboratory
- B. the factory
- C. the office

1. Workers who met each other socially suffered from the condition.
2. The victims were all working with old documents.
3. They tried to kill the insects they thought were responsible.
4. They said the creatures had come in material from abroad.
5. Employees' families were affected by the condition.

**Questions 6-8**

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



**Questions 9-13**

Do the following statements agree with the writer's views in Reading Passage 1? Write

- TRUE if the statement is true according to the passage
- FALSE if the statement is false according to the passage
- NOT GIVEN if the statement is not given in the passage

9. Some keep scratching because they know it will enable them to stop work.
10. The laboratory, factory and office employees all had boring jobs.
11. The human skin is extremely sensitive to irritants.
12. In many cases, people no longer believe what medical professionals say.
13. It is impossible to prevent the condition becoming an Internet epidemic.

**Question 14**

From the list below choose the most suitable alternative title for Reading Passage 1.

- A. The benefits of itching and scratching
- B. Increasing complaints about insects
- C. Scratching, yawning and laughing
- D. Imaginary bites and parasites
- E. Computer bites and Internet itches

**Passage 2**

Reading Passage 2 has six sections I—VI. Choose the most suitable heading for each section II—VI from the list below.

**List of headings**

- a. The lift in use
- b. The first and second lifts
- c. Restoring the lift
- d. The new canal
- e. Mechanical problems
- f. Why the lift was needed
- g. The supports of the second lift
- h. A new framework and machinery
- i. How the original lift worked
- j. A completely new lift

**Example Section I      Answer f**

- 15 Section II
- 16 Section III
- 17 Section IV
- 18 Section V
- 19 Section VI

## THE ANDERTON BOAT LIFT

**Section I**

When the Trent and Mersey Canal opened in 1777, the Cheshire town of Anderton was the obvious place to transfer goods to and from the nearby River Weaver. There was just one problem: the canal was fifteen metres above the river. Pathways, inclined planes, and chutes were constructed to ease the task of moving cargo by hand. Primitive railways were laid to move cargoes, cranes were built, and steam engines were later installed to power lifting. In the early 1870s, however, the Weaver Navigation Trustees decided to eliminate the cost, effort, and wastage involved in hand transportation when the engineers Edward Leader Williams and Edwin Clarke suggested a 'boat carrying lift.

**Section II**

Their design was a unique and magnificent example of the Victorians' mastery of cast iron and hydraulics. Completed in 1875, graceful in appearance, simple in use, and above all efficient, the lift was hailed as a marvel of the era, and became a prototype for larger versions on the waterways of France and Belgium.

The operating mechanism consisted of two vertical sets of interconnected hydraulic cylinders and pistons set into the bed of the river and each piston supported a boat-carrying tank 22.86 metres long and 4.72 metres wide. At rest, one tank was level with the canal and the other level with the river and to move the tanks, a small amount of water was removed from the bottom tank making it lighter than the top tank.

Because the two hydraulic cylinders were connected, the heavier top tank moved down and forced hydraulic liquid through the connecting pipe into the other cylinder pushing that piston and the lighter tank upwards. Watertight gates both on the tanks and at the entrance to the canal contained the water while the tanks were moving. A hydraulic pump driven by steam supplied the small amount of additional energy required to effect a reasonably rapid movement and to enable the tanks to be precisely levelled at the end of their journey.

**Section III**

All went well for the first ten years, then pitting and grooving of the cylinders and pistons occurred. Investigations showed that the canal water used as the hydraulic liquid was contaminated by chemicals and was corrosive, therefore causing the damage.

It was immediately changed to distilled water from the steam engine powering the hydraulic pump. Corrosion was dramatically reduced but the damage had been done.

In addition, the boiler for the steam engine needed renewing, so in 1906 the Trustees ordered the construction of a new lift, to a design by their engineer J A Saner.

**Section IV**

The new lift was built over the top of the Victorian structure, utilizing the Victorian front and rear columns. The main structure had strong A-frames at either side of the new lift to support the enormous weight of the platform that now formed the top of the framework: on it was located

the new operating mechanism, which included seventy- two pulleys weighing up to 35 tonnes each.

Each of the boat-carrying tanks was now suspended on wire ropes which ran from the tank to the top of the lift, around pulleys, and down to cast-iron weights at the side of the structure. These were equal to the weight of the water-filled tank. Turning the pulleys one way or the other moved the ropes, so that one tank was raised or lowered independently of the other tank. Because the tanks were counterbalanced by the weights, only a small electrical motor was required to turn the pulleys and so move the tanks up or down.

Completed in 1908 the lift was reliable, cheap and easy to operate. Unlike the Victorian lift it was not the least bit elegant, but it was functional and it worked.

**Section V**

Both the 1875 the 1908 versions carried large volumes of commercial traffic and the principal cargoes transported were coal, china clay, salt, manufactured goods, including china ware, and agricultural produce.

Sadly trade on inland waterways in Britain declined dramatically in the 1950s, and goods traffic via the lift effectively ended in the 1960s. The 1970s increase in pleasure boating briefly prolonged its active life, but in 1982 the 'Cathedral of the Canals' was finally closed.

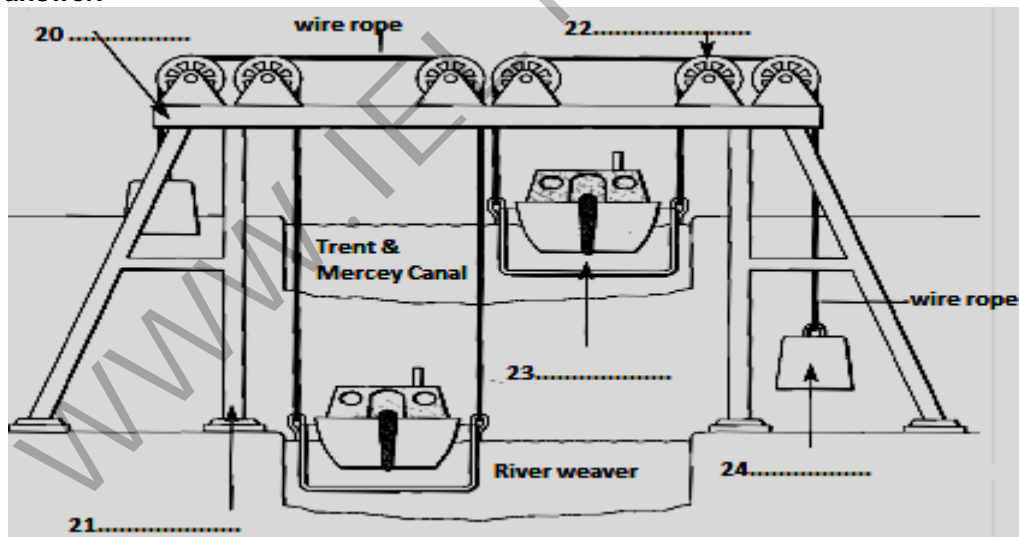
**Section VI**

Demolition seemed inevitable, but, after a long campaign by concerned groups, British Waterways agreed, in 1999, to save the lift. Some wanted it 'conserved as found', but that would entail replacing much of the existing structure, virtually creating a replica lift. The steel of the 1908 structure had been badly corroded by pollutants from the local chemical industries and would need replacing if it were to support the overhead machinery and 500-tonne counterweights. In addition, safety considerations would require the installation of a back-up braking system.

It was decided, therefore, to revert to the 1875 hydraulically-operated system, using the original cast-iron structure. Although the counterweights had to be removed, the 1908 framework and pulleys would be retained as a static monument. It was a huge and expensive project, and not without difficulties. Eventually in 2002, the Anderton Boat Lift was officially reopened. Boat owners and visitors alike can once again ride 'the world's first boat lift'.

**Questions 20-24**

Complete the diagram below. Choose NO MORE THAN THREE WORDS from the passage for each answer.



**Questions 25—27**

Complete the notes below. Choose NO MORE THAN THREE WORDS from Reading Passage 2 for each answer.

- 25. Similar lifts to the Anderton were later built in .....
- 26. Extra power to move the tanks came from .....
- 27. Using water from the canal harmed the .....

**Passage 3****Life, but not as we know it***Henry Gee*

Astrobiology is arguably the trendiest buzzword in science after genomics. Like genomics, it is as hip as it is hard to define. Broadly speaking, it is an umbrella term for efforts of many scientists working in diverse fields to understand the conditions of life in the universe, whether on Earth or elsewhere.

The canvas is, in fact, so broad that many scientists might be astrobiologists without knowing it: astrobiology adds glamour to all science, from astronomy to zoology. Those with long memories and a cynical mien will have soon all this before. Once upon a time, there was a research programme called exobiology. Is astrobiology a new name for repackaged goods?

No, for two reasons. First, many discoveries made in the past decade have set people thinking, once again, about life elsewhere. For example, hardly a month goes by without the discovery of yet another planet orbiting a distant star. And whatever the truth about the much-disputed claims for fossils in Martian meteorites, the controversy has rehabilitated the idea of panspermia: that life can spread between planets.

Second, astrobiology is almost a trademarked term. The Nasa Astrobiology Institute is a virtual campus linking research centres with universities, all devoted to learning more about the general principles governing the origin of life in the universe. Significantly, Nature magazine recently looked at astrobiology in all its forms, from the quest to understand how life began on Earth to the prospects of finding intelligent life elsewhere in the universe.

Not that this should be a cause for wide-eyed celebration, say its critics. Ironically, the most vociferous of these come not from the world of science but from science fiction. Brian Aldiss, veteran writer, critic, and leading light of the genre, dismisses our current obsession with life elsewhere, however much it is justified by science, as an expensively scratched itch.

Aliens, he argues, are a manifestation of a fundamental human urge to populate the universe with 'others', whether gods, ghosts, little green men, or cartoon characters. Scientists should beware of taking science fiction too seriously: aliens are useful as plot devices, but this does not make them real.

A rather different criticism comes from scientists-turned-science fiction writers Jack Cohen and Ian Stewart. Both are academics - Cohen is a biologist, Stewart is a mathematician — but they have worked in SF, most recently on their novel *Wheeler's*. Their argument with astrobiology is not that aliens might not exist, but that we cannot help be constrained in our search.

All organisms on Earth, from the tiniest bacterium to the biggest whales, are constructed according to the same rules. Earthly genetic information is carried in genes made of DNA, earthly life is based on polymers of carbon, and its chemistry happens in liquid water. Because this kind of life is all we know, we tend to think that the same rules need apply everywhere. So, when probes land on Mars, or scientists look at Martian meteorites, they tend to look for the kinds of vital signs that betray earthly organisms when we have absolutely no reason for thinking that life elsewhere should be earthlike, or that our definition of life cannot be based more broadly. When the Mars Rover sat and stared at a rock, how do we know that the rock was not staring right back?

It is a fairly simple matter to come up with a definition of life that is based on what it does, rather than what it is made of. It is much more difficult, however, to make such a definition stick, preventing the term from becoming so inclusive as to be meaningless. You might start by positing three rules. The first is that life requires the existence of information that can be reproduced and inherited, with variation. Second, that living systems seem to create order and structure and maintain it in the face of chaos. Third, that a living system has to work hard to maintain its structure, and as soon as it stops doing this it degenerates.

These rules seem, at first, to be fairly precise, in as much they weed out quietly observant Martian surface rocks. But as Cohen and Stewart show in their novel, it is possible to imagine entities that follow all three rules and which appear to be alive, but which bear absolutely no resemblance to terrestrial organisms. In *Wheeler's*, they describe civilizations of floating, methane-breathing balloons in the atmosphere of Jupiter and organisms made of magnetically—confined plasma, living in the outer layers of the sun.

Other science fiction writers have imagined life on the surfaces of neutron stars, inside computers, or even in interstellar space. In his latest novel, *Look to Windward*, Lain M Banks describes organisms the size of continents, supporting entire civilizations as their intestinal parasites. All could be said to constitute life, but in Dr McCoy's immortal phrase from *Star Trek*, 'not as we know it'.

Could this mean that astrobiology, the aims of which are universal, is really no more than a parochial exercise? We might never know — perhaps even when we are visited by aliens from the other side of the galaxy who try, frantically, to gain our attention, by waving under our noses whatever it is they have under such circumstances. It will not be their fault that they will be microscopic and destroyed by a single sneeze. As Cohen and Stewart conclude in *Wheeters*, 'Life goes on everywhere.'

**Questions 28—34**

Complete the summary below. Choose the answers from the box. There are more choices than spaces, so you will not need to use all of them.

The same biological and chemical principles (example) determine the make-up of all terrestrial life forms, whatever their 28 ..... We often assume that this is the case throughout the universe, as we have 29 ..... observed other kinds of organism. Scientists therefore make the 30 ..... of searching for indications of Earth-style living things when examining material from another 31....., where the nature of any life may lie far outside their own 32 ..... definition. On the other hand, if the focus is not on 33 ..... but on behaviour, there is a risk of 34 ..... life much too broadly.

**List of words**

location	principles	previous	narrow	galaxy	frequently
discussing	rarely	defining	never	composition	size
planet	extending	mistake	breakthrough	basing	regulations

**Questions 35-38**

The text refers to the ideas of various science fiction writers. Match writers A—C with the points in 35-38. You may use any of the writers more than once.

- 35. Other life forms may fit a definition of life but be quite unlike anything on Earth.
- 36. People instinctively want to believe in extraterrestrial life forms.
- 37. There could be life within life on an immense scale.
- 38. Humans are inevitably limited in their ability to find life beyond Earth.

<b>List of writers</b>	
A.	Aldiss
B.	Banks
C.	Cohen & Stewart

**Questions 39-40** Choose the appropriate letters A—D

39. The writer believes that astrobiology

- A. may now be the second most fashionable science.
- B. is very similar to exobiology.
- C. has proved that a meteorite from Mars contains fossils.
- D. is not taken seriously by scientific publications.

40. Which of the following statements best describes the writer's main purpose in Reading passage 3?

- A. to describe the latest scientific developments in the study of the universe
- B. to explain why there is growing interest in the study of astrobiology
- C. to show that science fiction writers have nothing useful to say about aliens
- D. to suggest that astrobiology may not help us find extraterrestrial life