READING MOCK TEST 8

READING PASSAGE 1

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

The secret of staying young

Pheidole dentata, a native ant of the south-eastern U.S., isn't immortal. But scientists have found that it doesn't seem to show any signs of aging. Old workers ants can do everything just as well as the youngsters, and their brains appear just as sharp. 'We get a picture that these ants really don't decline,' says Ysabel Giraldo, who studies the ants for her doctoral thesis at Boston University.

Such age-defying feats are rare in the animal kingdom. Naked mole rats can live for almost 30 years and stay fit for nearly their entire lives. They can still reproduce even when old, and they never get cancer. But the vast majority of animals deteriorate with age just like people do. Like the naked mole rat, ants are social creatures that usually live in highly organised colonies. 'It's this social complexity that makes *P. dentata* useful for studying aging in people,' says Giraldo, now at the California Institute of Technology. Humans are also highly social, a trait that has been connected to healthier aging. By contrast, most animal studies of aging use mice, worms or fruit flies, which all lead much more isolated lives.

In the lab, *P. dentata* worker ants typically live for around 140 days. Giraldo focused on ants at four age ranges: 20 to 22 days, 45 to 47 days, 95 to 97 days and 120 to 122 days. Unlike all previous studies, which only estimated how old the ants were, her work tracked the ants from the time the pupae became adults, so she knew their exact ages. Then she put them through a range of tests.

Giraldo watched how well the ants took care of the young of the colony, recording how often each ant attended to, carried and fed them. She compared how well 20-day-old and 95-day-old ants followed the telltale scent that the insects usually leave to mark a trail to food. She tested how ants responded to light and also measured how active they were by counting how often ants in a small dish walked across a line. And she experimented with how ants react to live prey: a tethered fruit fly. Giraldo expected the older ants to perform poorly in all these tasks. But the elderly insects were all good caretakers and trail-followers – the 95-day-old ants could track the scent even longer than their younger counterparts. They all responded do light well, and the older ants were more active. And when it came to reacting to prey, the older ants attacked the poor fruit fly just as aggressively as the young ones did, flaring their mandibles or pulling at the fly's legs.

Then Giraldo compared the brains of 20-day-old and 95-day-ole ants, identifying any cells that were close to death. She saw no major differences with age, nor was there any difference in the location of the dying

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cells, showing that age didn't seem to affect specific brain functions. Ants and other insects have structures in their brains called mushroom bodies, which are important for processing information, learning and memory. She also wanted to see if aging affects the density of synaptic complexes within these structures – regions where neurons come together. Again, the answer was no. what was more, he old ants didn't experience any drop in the levels of either serotonin or dopamine – brain chemicals whose decline often coincides with aging. In humans, for example, a decrease in serotonin has been linked to Alzheimer's disease.

'This is the first time anyone has looked at both behavioral and neural changes in these ants so thoroughly,' says Giraldo, who recently published the findings in the *Proceeding of the Royal Society B*. Scientists have looked at some similar aspects in bees, but the results of recent bee studies were mixed – some studies showed age-related declines, which biologists call senescence, and others didn't. 'For now, the study raises more questions than it answers,' Giraldo says, 'including how *P. dentata* stays in such good shape.'

Also, if the ants don't deteriorate with age, why do they die at all? Out in the wild, the ants probably don't live for a full 140 days thanks to predators, disease and just being in an environment that's much harsher than the comforts of the lab. 'The lucky ants that do live into old age may suffer a steep decline just before dying,' Giraldo says, but she can't say for sure because her study wasn't designed to follow an ant's final moments.

'It will be important to extend these findings to other species of social insects,' says Gene E. Robinson, an entomologist at the University of Illinois at Urbana-Champaign. This ant might be unique, or it might represent a broader pattern among other social bugs with possible clues to the science of aging in larger animals. Either way, it seems that for these ants, age really doesn't matter.

Questions 1-8

Complete the notes below.

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

*Write your answer in boxes **1-8** on your answer sheet.*

Ysabel Giraldo's research

Focused on a total of (1)…….. different age groups of ants, analyzing

Behaviour:

- how well ants looked after their (2) ……..
- their ability to locate (3)…… using a scent trail
- the effect that (4)…….. had on them
- how (5)……. they attacked prey

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Brains:

- comparison between age and the (6)…… of dying cells in the brains of ants
- condition of synaptic complexes (areas in which (7)…… meet) in the brain's 'mushroom bodies'
- level of two (8)…….. in the brain associated with ageing

Questions 9-13

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

In boxes **9-13** on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

9. *Pheidole dentata* ants are the only known animals which remain active for almost their whole lives.
10. Ysabel Giraldo was the first person to study *Pheidole dentata* ants using precise data about the insects' ages.
11. The ants in Giraldo's experiments behaved as she had predicted that they would.
12. The recent studies of bees used different methods of measuring age-related decline.
13. *Pheidole dentata* ants kept in laboratory conditions tend to live longer lives.

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READING PASSAGE 2

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

Why zoos are good

Scientist David Hone makes the case for zoos

A. In my view, it is perfectly possible for many species of animals living in zoos or wildlife parks to have a quality of life as high as, or higher than, in the wild. Animals in good zoos get a varied and high-quality diet with all the supplements required, and any illnesses they might have will be treated. Their movement might be somewhat restricted, but they have a safe environment in which to live, and they are spared bullying and social ostracism by others of their kind. They do not suffer from the threat or stress of predators, or the irritation and pain of parasites or injuries. The average captive animal will have a greater life expectancy compared with its wild counterpart, and will not die of drought, of starvation or in the jaws of a predator. A lot of very nasty things happen to truly 'wild' animals that simply don't happen in good zoos, and to view a life that is 'free' as one that is automatically 'good' is, I think, an error. Furthermore, zoos serve several key purposes.

B. Firstly, zoos aid conservation. Colossal numbers of species are becoming extinct across the world, and many more are increasingly threatened and therefore risk extinction. Moreover, some of these collapses have been sudden, dramatic and unexpected, or were simply discovered very late in the day. A species protected in captivity can be bred up to provide a reservoir population against a population crash or extinction in the wild. A good number of species only exist in captivity, with many of these living in zoos. Still more only exist in the wild because they have been reintroduced from zoos, or have wild populations that have been boosted by captive bred animals. Without these efforts there would be fewer species alive today. Although reintroduction successes are few and far between, the numbers are increasing, and the very fact that species have been saved or reintroduced as a result of captive breeding proves the value of such initiatives.

C. Zoos also provide education. Many children and adults, especially those in cities, will never see a wild animal beyond a fox or pigeon. While it is true that television documentaries are becoming ever more detailed and impressive, and many natural history specimens are on display in museums, there really is nothing to compare with seeing a living creature in the flesh, hearing it, smelling it, watching what it does and having the time to absorb details. That alone will bring a greater understanding and perspective to many, and hopefully give them a greater appreciation for wildlife, conservation efforts and how they can contribute.

D. In addition to this, there is also the education that can take place in zoos through signs, talks and presentations which directly communicate information to visitors about the animals they are seeing and their place in the world. This was an area where zoos used to be lacking, but they are now increasingly sophisticated

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in their communication and outreach work. Many zoos also work directly to educate conservation workers in other countries, or send their animal keepers abroad to contribute their knowledge and skills to those working in zoos and reserves, thereby helping to improve conditions and reintroductions all over the world.

E. Zoos also play a key role in research. If we are to save wild species and restore and repair ecosystems we need to know about how key species live, act and react. Being able to undertake research on animals in zoos where there is less risk and fewer variables means real changes can be effected on wild populations. Finding out about, for example, the oestrus cycle of an animal of its breeding rate helps us manage wild populations. Procedures such as capturing and moving at-risk or dangerous individuals are bolstered by knowledge gained in zoos about doses for anaesthetics, and by experience in handling and transporting animals. This can make a real difference to conservation efforts and to the reduction of human-animal conflicts, and can provide a knowledge base for helping with the increasing threats of habitat destruction and other problems.

F. In conclusion, considering the many ongoing global threats to the environment, it is hard for me to see zoos as anything other than essential to the long-term survival of numerous species. They are vital not just in terms of protecting animals, but as a means of learning about them to aid those still in the wild, as well as educating and informing the general population about these animals and their world so that they can assist or at least accept the need to be more environmentally conscious. Without them, the world would be, and would increasingly become, a much poorer place.

Questions 14-17

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

Which paragraph contains the following information?

*Write the correct letter, **A-F**, in boxes **14-17** on your answer sheet.*

14. a reference to how quickly animal species can die out
15. reasons why it is preferable to study animals in captivity rather than in the wild
16. mention of two ways of learning about animals other than visiting them in zoos
17. reasons why animals in zoos may by healthier than those in the wild

Questions 18-22

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

In boxes **18-22** on you 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

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18. An animal is likely to live longer in a zoo than in the wild

19. There are some species in zoos which can no longer be found in the wild.

20. Improvements in the quality of TV wildlife documentaries have resulted in increased numbers of zoo visitors.

21. Zoos have always excelled at transmitting information about animals to the public.

22. Studying animals in zoos is less stressful for the animals than studying them in the wild.

Questions 23 and 24

Choose **TWO** letters, **A-E.**

*Write the correct letters in boxes **23** and **24** on your answer sheet.*

Which **TWO** of the following are stated about zoo staff in the text?

A. Some take part in television documentaries about animals

B. Some travel to overseas locations to join teams in zoos.

C. Some get experience with species in the wild before taking up zoo jobs.

D. Some teach people who are involved with conservation projects.

E. Some specialise in caring for species which are under threat.

Questions 25 and 26

Choose **TWO** letters, **A-E**

*Write the correct letters in boxes **25** and **26** on your answer sheet.*

Which **TWO** of these beliefs about zoos does the writer mention in the text?

A. They can help children overcome their fears of wild animals.

B. They can increase public awareness of environmental issues.

C. They can provide employment for a range of professional people.

D. They can generate income to support wildlife conservation projects.

E. They can raise animals which can later be released into the wild.

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