Part 3: Exam practice

Exam tip: When deciding between the answers to multiple choice questions, do not be misled by answers that look similar to what you have read in the text. For example, there is a difference between 'experts agree' (= all experts agree) and 'some experts say' (= not all experts agree, just some).

*Look at the passage below. For each question choose one answer from the letters **A–D**.*

1 Complex information

- **A** can only be communicated by human beings.
- **B** is described as intelligent, self-aware and based on context.
- **C** is communication across species.
- **D** is too difficult for Campbell's monkeys to understand properly.

2 Chimpanzees

- **A** are not as intelligent as birds.
- **B** can be taught language.
- **C** can play the keyboard.
- **D** have the language skills of a four-year old child.

3 Birds have shown evidence of being able to

- **A** teach themselves to solve problems.
- **B** use multiple tools better than humans do.
- **C** read numbers as well as people do.
- **D** sleep better after taking tests.

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A scientist based in Scotland claims to have found the first evidence of a common language shared by different animal species. The calls, which are understood by monkeys and birds, were discovered by Klaus Zuberbühler, a psychologist at St Andrews University. According to Zuberbühler, animals and birds can communicate complex ideas not just to their peers but across species.

The findings have been heralded as a significant breakthrough in the quest to discover the origins of human language and proof that the ability to construct a complex form of communication is not unique to man. Zuberbühler made the discovery after spending months observing the calls of Diana monkeys in the Tai Forest in Ivory Coast, in West Africa. He and his colleagues recorded thousands of monkey calls and spent hundreds of hours listening to the animals' noises. They noticed that the monkeys adapted their calls to change the meaning to warn one another about different threats or opportunities. For example, the sight of a leopard prompted a 'krack' alarm call. However, when they merely repeated calls made by other monkeys they added an 'oo'.

The researchers found that the calls could be understood by other species of monkey as well as by some birds. 'What our discovery showed is that the alarm calls were far more complex than we had thought,' said Zuberbühler. 'They were conveying information that was contextual, self-aware and intelligent. We then tried playing these calls back to other monkeys and they responded in ways that showed they knew the meaning. What's more, the same calls would be recognised by other species, like Campbell's monkeys. So they are communicating across species. And since then we have found that hornbill birds can understand these calls and they too can understand all the different meanings.'

Among scientists, the idea that animals and birds might be sentient has been around a long time. Chimpanzees are perhaps the most obvious species for comparisons with humans, but their abilities can still surprise, as when researchers at Georgia State University's language research centre in Atlanta taught some to 'speak'. They taught the animals to use voice synthesisers and a keyboard to hold conversations with humans. One chimp developed a 3,000-word vocabulary and tests suggested she had the language and cognitive skills of a four-year-old child.

Perhaps the most surprising signs of intelligence have been found in birds – whose tiny heads and small brains were long assumed to be a complete barrier to sentience. All that is changing fast, however, with many species showing powerful memories and reasoning power. A few years ago Irene Pepperberg of the Massachusetts Institute of Technology taught a parrot to recognise and count up to six objects and describe their shapes.

Last year that was topped by Alex Kacelnik, a professor of behavioural ecology at Oxford, who discovered that crows are capable of using multiple tools in complex sequences, the first time such behaviour had been observed in non-humans. In an experiment seven crows successfully reeled in a piece of food placed out of reach using three different lengths of stick. Crucially, they were able to complete the task without any special training, suggesting the birds were capable of a level of abstract reasoning and creativity normally associated only with humans.

Last week it emerged that researchers from Padua University in Italy had found that birds were able to read numbers from left to right, as humans do, and count to four even when the line of numbers was moved from vertical to horizontal. They also showed that birds performed better in tests after a good night's sleep.

All this is powerful evidence against the idea that people are unique.

Glossary:
species: a class of plants or animals whose members have the same main characteristics and are able to breed with each other
peer: (here) members of the same species
sentient: capable of experiencing things through its senses

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