

13+ Entrance Exam Mark Scheme

Section 1

- 1) The **most appropriate** title for the article is:
- The Rise of the Robotic Reptiles;
 - Lizards and their Sticky Feet;
 - Advances in Robotic engineering;
 - The Great Gecko Grip;**
 - Broccoli and Spoon-shaped Toes.

The article focuses on how and why the gecko is able to grip onto apparently smooth surfaces. The robotic applications are secondary to this, thus A and C are less relevant. E refers to the micro-structures of the feet, but it is hardly a catchy title. The notion of 'sticky feet' is appealing (B) but the alliteration of 'Great Gecko Grip' is more effective.

- 2) The tone of the article is **best described** as:
- Excited and lively;
 - Amazed and informative;**
 - Serious and boring;
 - Objective and thorough;
 - 'Conversational' and detailed.

B: The article repeatedly expresses wonder at the apparent talents of the Gecko and the miracle of their feet. ('Astonished', 'amazing all round', 'impressive') The article conveys a lot of information about geckos in general, the research being done on them/because of them. A: lacks the informative element. C and D: lack amazement/wonder, E suggests a casualness the passage does not have, even though it is detailed.

- 3) The adjective which is **best applied** to the lizards in paragraph one is:
- Bored;
 - Lively;
 - Peaceful;
 - Still;**
 - Sluggish.

Paragraph one makes it clear that the gecko does nothing: it 'hangs [on the wall] for fifteen minutes or more]. There is no reference to expression or emotion, (A,B, C) nor is there any suggestion that the gecko's actual movement are slow. (E). Therefore, the correct answer is D – still.

- 4) The details in paragraphs one and two **most clearly suggest** that:
- Geckos are happy upside down;
 - Geckos have a magic power;
 - Geckos have been amazing people for centuries;**
 - Geckos are very relaxed;
 - Geckos don't make much effort.

The key word/phrases in paragraph 2 are 'astonished', and 'Aristotle... fourth century BC. (C) The rest of the paragraph describes what the gecko *does* to amaze people: in this instance, 'run[ning] vertically up and down at will. There is no suggestion that they are 'happy', (A) 'relaxed', (B) or lazy (E). Geckos have an 'ability', not a 'magic power'. (B)

- 5) The qualities of a gecko can be described as: **(List all that apply.)**
- Surprising;**
 - Premier;
 - Relaxed;
 - Adhesive;**
 - Energy Efficient.**

The article as a whole relates to the unusual abilities of the gecko. Not many of these are known; hence 'surprising'. (A) 'Adhesive' is a synonym for 'sticky', (i.e. sticking to walls). (D) 'Energy efficient' (E) is drawn from paragraph 6 (the work of Kella Autumn into the nocturnal gecko.) 'Premier' (D) is a red herring: the Tokay gecko is described as 'the prime gecko in every respect.' The gecko is never described as relaxed. (C)

- 6) The veteran soldiers did not tell new recruits about the 'Fu Lizard. This **strongly suggests**:
- They wanted the new soldiers to be scared;
 - They didn't know what it was themselves;
 - It was a form of enemy communication;
 - There was nothing to worry about;
 - New soldiers needed to get used to the jungle.**

The passage makes it clear that the veterans are experienced and went through the same experience themselves, so A and B *may* apply. The geckos only *sound like* the enemy, so C is incorrect. By extension, D *may apply*, but it is very weak. However, in the context of the passage, it's important that new recruits are able to distinguish the sounds of the jungle from 'real' enemy communication, but they had to work it out from themselves – and thus 'get used to the jungle'. (E).

- 7) Professor Full works with other scientific disciplines and universities in order to develop his robots. The **best simile** to describe his position is:
- Like a spider in a web;
 - At the heart of things;
 - As involved as possible;
 - As free as a bird;
 - Like a lone wolf.

Paragraph 5 describes Professor Full 'at the centre of collaborative efforts...' so the choice needs express a sense of being in 'the thick of things'. B is not a simile. C is an adverbial phrase, using 'as'. D and E are similes, but they convey a sense of isolation. ('Free' and 'lone'.) Therefore, A is correct because 'like a spider in a web' is a simile which conveys the idea that the professor is central to the combined efforts of the researchers. There is an underlying idea that information is channelled to him via the spider's web.

- 8) The phrase 'six-legged gait' **most strongly suggests**:
- A jerky movement;
 - A smooth motion;
 - An efficient movement;
 - A mechanical movement;
 - An insect movement.

There is nothing about the phrase 'six legged' which suggests smooth, jerky or efficient movement. (A,B, C) There is an argument for 'mechanical' (D) as the phrase is used in the context of robotic application, but the full sentence 'six –legged gait of creatures such as cockroaches' clearly suggests insects.

- 9) The 'Mecko Gecko' is **best described** as:
- A toy;
 - An idea;
 - A slogan;
 - A machine;
 - A rock climber.

(B) The 'Mecko-gecko' refers to the *possibility* of creating a climbing robot: it has not yet been made (either as a toy or a machine. A, D) 'Mecko Gecko' is only a name (possibly a nick-name) for the concept; consequently there is no sense branding or advertising is a concern at this stage of the research. (C). Only vertical surfaces have been mentioned, not 'rock-climbing'. (E).

10) The quotation 'some kind of bristly structure' (paragraph 7) **implies that:** (List all which apply)

- a. Geckos have hairy feet;
- b. There is more to a gecko's foot than meets the eye;
- c. Scientists are unsure about what the structure is;
- d. Geckos have special adaptations;
- e. Geckos' feet are protected.

(A): 'Hairy feet' suggests a furry covering which is inaccurate. (Reptiles don't have hair or fur.) The (micro)structures on the geckoes' feet are referred to as 'bristles'. The one quoted reference to 'hair' is in relation to the micro-bristles and the 'flattened spoon like structures', which are clearly 'special adaptations.' (D) The microscopic level of detail needed to reveal these features makes it clear that the structures are not readily apparent – that there is 'more to the gecko's foot than meets the eye'. (B) The structures are described in several different ways, but never given a definitive name. However, it is clear that the scientist what out what the structure **is**: it is a special adaptation which allows the gecko to have millions of points contact with a surface and thus run up walls. (C) There is no suggestion that geckos' feet are protected by this structure. (E).