## SECTION A: COMPREHENSION

### QUESTION 1: READING FOR MEANING AND UNDERSTANDING

Read TEXTS A and B and answer the questions in your own words as far as possible.

### TEXT A

**HOW AFRAID OF HUMAN CLONING SHOULD WE BE?**

1 The creation of two monkeys brings the science of human cloning closer to reality. But that doesn't mean it will happen.

2 The cloning of macaque monkeys in China makes human reproductive cloning more conceivable. At the same time, it confirms how difficult it would be to clone a random adult – Adolf Hitler, say – from a piece of his tissue. And it changes nothing in the debate about whether human cloning should ever be allowed to occur.

3 Since the cloning of Dolly the sheep by scientists in Scotland in 1996, several other mammals have been cloned, including dogs, cats and pigs. But the same methods didn't work so well for primates, like monkeys, and us. So this latest step is significant, because with a bit of modification, the technique used for Dolly created cloned, apparently healthy baby monkeys. The pair made this way by scientists at the Institute of Neuroscience in Shanghai have been christened Hua Hua and Zhong Zhong.

4 Crucially, the cute duo was cloned from the genetic material in the cells of a macaque foetus, not from an adult monkey. This material – the chromosomes, housed in the cell's nucleus – was extracted from the donor cell and placed inside the egg from an adult monkey, from which its own nucleus had first been removed. The egg was then stimulated to grow into an embryo in a surrogate[1] mother's womb, to make the egg respond as if it had been fertilised.

5 The important additional step – not needed for Dolly and her kind – added some molecules to the egg before implantation. These molecules could activate genes involved in embryo development. Without the encouragement of the added molecules, these genes don't seem to "awaken" in primates, and so the embryo can't develop. But in adult cells, those genes can't so easily be revived, which is what still prevents the successful cloning of adult monkeys. In contrast, Dolly was cloned from cells of an adult ewe.

6 The Chinese scientists want to clone monkeys to study the genetic factors behind Alzheimer's disease. With a strain of genetically identical monkeys, they can deactivate individual genes thought to play a role in the disease and see what effect it has. Such biomedical use of primates is fraught with ethical issues – it is of course the very closeness of the relationship to humans that makes such research more informative but also more disturbing.

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7 But the research also reopens the debate about human reproductive cloning. No one can yet know if cloning of a human foetus would work this way, but it seems entirely possible. Human cloning for reproduction is banned in many countries. A declaration by the UN in 2005 called on all states to prohibit it as "incompatible with human dignity and the protection of human life". Right now this advice is respected on safety grounds alone. Hua Hua and Zhong Zhong were the only live births from six pregnancies, resulting from the implantation of 79 cloned embryos into 21 surrogates. Two baby macaques were in fact born from embryos cloned from adult cells, but both died – one from impaired body development, the other from respiratory failure.

8 My guess is that the success rate will improve – and that there will eventually be successful cloning from adult cells. That won't avoid safety concerns for human cloning though, and it's hard to see quite how the issue can ever be convincingly resolved short of actually trying it. That was how IVF[2] began. Many people, including some eminent scientists, were convinced that it would lead to birth defects. But in the absence of a clear ethical framework, Robert Edwards and Patrick Steptoe were able to try it anyway in 1977. Their bold, even reckless move has now alleviated the pain of infertility for millions of people.

9 It's not hard to think up invalid reasons for human cloning, of course – most obviously, the vanity of imagining that one is somehow creating a "copy" of oneself and thereby prolonging one's life. That notion would not only be obnoxious, but also deluded. Which is not to say that it would prevent someone from giving it a go. The fantasist "human cloning company" Clonaid, run by the Raëlian cult, which falsely claimed to have created the first cloned child in 2002, stated in its publicity material that "a surprisingly large number" of the requests it had received "come from the Los Angeles/Hollywood area".

10 Although human reproductive cloning would be foolish and lacking solid motivation, that doesn't excuse some of the baseless reasons often advanced against it. Suggestions that a cloned child would be stigmatised and "unnatural" echo many of the earlier objections to IVF. The cloning debate reveals more about our prejudices towards reproductive technologies in general than it does about our ability to make wise decisions about biomedical advances. A good case was never made with bad arguments.

[Adapted from https://www.theguardian.com]

**GLOSSARY:**

[1]**surrogate**: the practice whereby a substitute mother develops an implanted egg in her uterus.

[2]**IVF – in vitro fertilisation**: a process of fertilisation where an egg is combined with sperm outside the body (in vitro) and then implanted into the uterus where the embryo develops and grows.

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**TEXT B**

[Source: http://www1.lasalle.edu]

**QUESTIONS: REFER TO TEXT A.**

1.1 Provide a reason for the writer's use of the pronoun, 'we' in the heading of the article. (2)

1.2 Quote the word in the first two lines which shows that the writer wants to allay the fears of the reader regarding the cloning of humans. (1)

1.3 Outline the paradox in the successful cloning of the two monkeys, Hua Hua and Zhong Zhong (paragraph 2, lines 3–5). (2)

1.4 Explain in your own words why the successful cloning of the two monkeys was 'significant' (line 11). (2)

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1.5 List the three steps in the cloning process in your own words (paragraph 4). (3)

1.6 Refer to lines 11–12: '… the technique used for Dolly created cloned, apparently healthy baby monkeys.'

How does the use of the word, 'apparently' (line 12) affect your understanding of the statement? (2)

1.7 Refer to line 15: 'Critically, the cute duo was cloned'.

Explain the writer's intention in calling these monkeys, 'cute' when taking into consideration the purpose for which they have been created. (2)

1.8 How would the validity of the genetic research be affected if Hua Hua and Zhong Zhong were not 'genetically identical monkeys' (line 29)? (2)

1.9 Do you think the UN is correct in stating that human cloning is 'incompatible with human dignity and the protection of human life' (line 38)? Motivate your answer by referring to the text. (3)

1.10 Refer to lines 59–60: '"a surprisingly large number" of the requests it had received "come from the Los Angeles/Hollywood area".'

Taking into consideration the writer's opinion as expressed in paragraph 9, comment critically on his inclusion of the above claim made by Clonaid. (3)

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**QUESTIONS: REFER TO TEXT B.**

1.11 Identify ONE visual clue in Frame 1 which suggests that the man with the beard reacts negatively to the first speaker's words. (1)

1.12 What does the sentence in Frame 2 convey about the speaker's attitude? (3)

**QUESTION: REFER TO TEXT A AND TEXT B.**

1.13 Refer to the writer's opinion about the 'prejudices' (line 65) of humans in paragraph 10 of Text A, and the statements made by the first speaker in Frame 1 of Text B.

Do you think the writer of Text A agrees with the statements made in Text B?

Motivate your answer by referring to both paragraph 10 of Text A and frame 1 of Text B. (4)

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