

國立成功大學

111學年度碩士班招生考試試題

編 號：314

系 所：細胞生物與解剖學研究所

科 目：科學英文

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節 次：第 2 節

備 註：不可使用計算機

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※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

**Please answer questions (in English) according to the following article:**

A spate of new studies on lab animals and human tissues are providing the first indication of why the Omicron variant causes milder disease than previous versions of the coronavirus. In studies on mice and hamsters, Omicron produced less damaging infections, often limited largely to the upper airway: the nose, throat and windpipe. The variant did much less harm to the lungs, where previous variants would often cause scarring and serious breathing difficulty.

In November, when the first report on the Omicron variant came out of South Africa, scientists could only guess at how it might behave differently from earlier forms of the virus. All they knew was that it had a distinctive and alarming combination of more than 50 genetic mutations. Some of these mutations enabled coronaviruses to grab onto cells more tightly. Others allowed the virus to evade antibodies, which serve as an early line of defense against infection. But how the new variant might behave inside of the body was a mystery. Meanwhile, Omicron surged across the planet, readily infecting even people who were vaccinated or had recovered from infections. But as cases skyrocketed, hospitalizations increased only modestly. Early studies of patients suggested that Omicron was less likely to cause severe illness than other variants, especially in vaccinated people. Still, those findings came with a lot of caveats. For one thing, the bulk of early Omicron infections were in young people, who are less likely to get seriously ill with all versions of the virus. And many of those early cases were happening in people with some immunity from previous infections or vaccines. It was unclear whether Omicron would also prove less severe in an unvaccinated older person, for example. Experiments on animals can help clear up these ambiguities, because scientists can test Omicron on identical animals living in identical conditions. More than half a dozen experiments made public in recent days all pointed to the same conclusion: Omicron is milder than Delta and other earlier versions of the virus. On Wednesday, a large consortium of Japanese and American scientists released a report on hamsters and mice that had been infected with either Omicron or one of several earlier variants. Those infected with Omicron had less lung damage, lost less weight and were less likely to die, the study found.

**Questions:**

1. Please try to give a title for this article. (20%)
2. What are the major target locations in the body for the Omicron variant virus? (20%)
3. What are the characteristics of the Omicron variant virus? (20%)
4. Why animal experiments are important to understand the effect of the Omicron variant? (20%)
5. How should we adjust our COVID-19 prevention measures for the Omicron variant in your opinion? (20%)