PART III

Attempt **TWO** *questions in this Part, which carries 24% of the marks for the examination. All of these questions carry equal marks. You are advised to spend about* **40 minutes** *on this Part. Write your answers to this part in the SEPARATE ANSWER BOOK provided.*

Remember to write your name, personal identifier and examination number on your answer book.

Question 4
part a, 9%
part b, 3%

It is now widely believed that the Moon was formed as a result of a giant impact. Assuming that this theory is correct,

(*a*) Describe the origin and nature of the two bodies that collided in the Moon-forming giant impact, beginning your account at a time when the solar nebula consisted of a disc of gas and dust, and ending your account immediately prior to the collision.

(*b*) Describe what would have happened to (i) the core (if any) and (ii) the mantle (if any) of each of the two bodies involved in the Moon-forming giant impact.

Question 5
part a, 3%
part b, 9%

(*a*) State approximately, relative to the Earth, the probable bulk composition, surface gravity, and atmospheric pressure of Venus.

(*b*) Bearing these factors in mind, discuss the composition and dispersal of (i) lava, and (ii) pyroclastic ash deposits (do not discuss pyroclastic flows) across Venus's surface. Your answers should include both theoretical discussion and observational data.

Question 6
part a, 6%
part b, 6%

(*a*) Describe the physical processes that in the so-called 'greenhouse effect' cause the temperature of a planet's atmosphere to rise.

(*b*) Explain why it is thought that Venus has almost no water in its atmosphere now, although water was produced by outgassing.