2002 HIGHER SCHOOL CERTIFICATE EXAMINATION

Chemistry

Section I – Part B (continued)

Marks

Question 19 (5 marks)

(a) Describe the conditions under which a nucleus is unstable. **2**

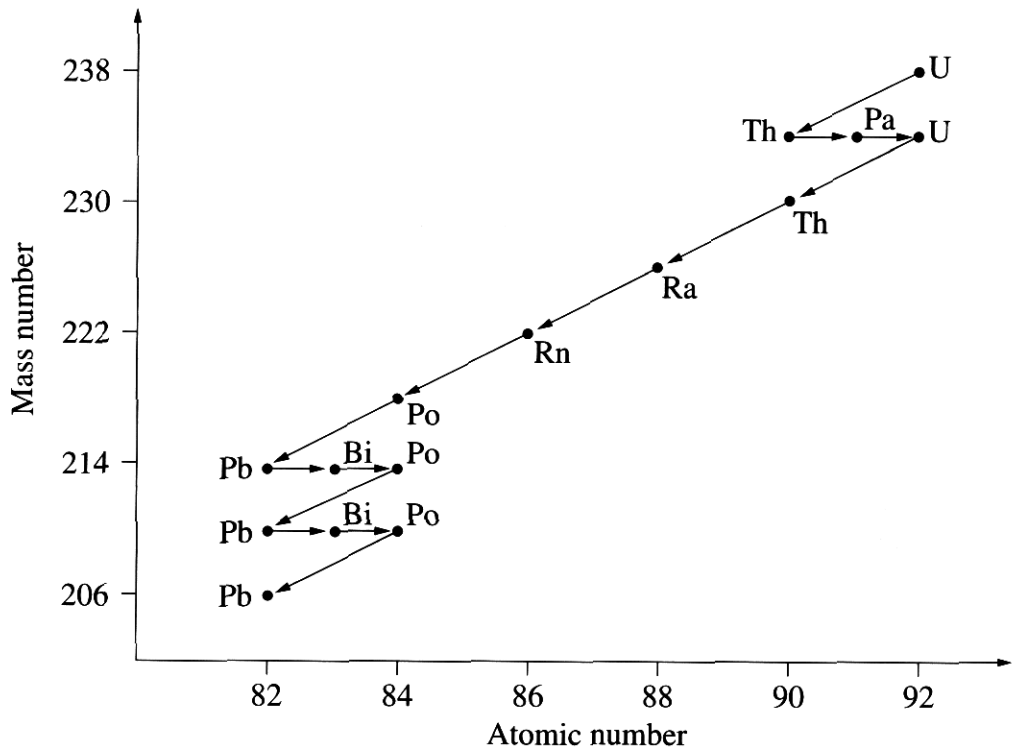
The nucleus of an element would be unstable if the atomic weight of the element was unstable. If the element could produce $\alpha - {}^{4}_{2}He$ or β decay or γ

Question 19 continues on page 14

Marks

Question 19 (continued)

(b) The following is a flow diagram showing the sequence of products released during the decay of uranium. **3**



Use examples from the flow diagram to describe processes by which an unstable isotope undergoes radioactive decay.

The flow diagram shows a uranium isotope undergoing decay. it undergoes initial β decay than α → α → β → β → β → β → β → α → α → β → α → α → β to become stable at lead.

End of Question 19