

Chemistry

Section I – Part B (continued)

Marks

Question 19 (5 marks)

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

2

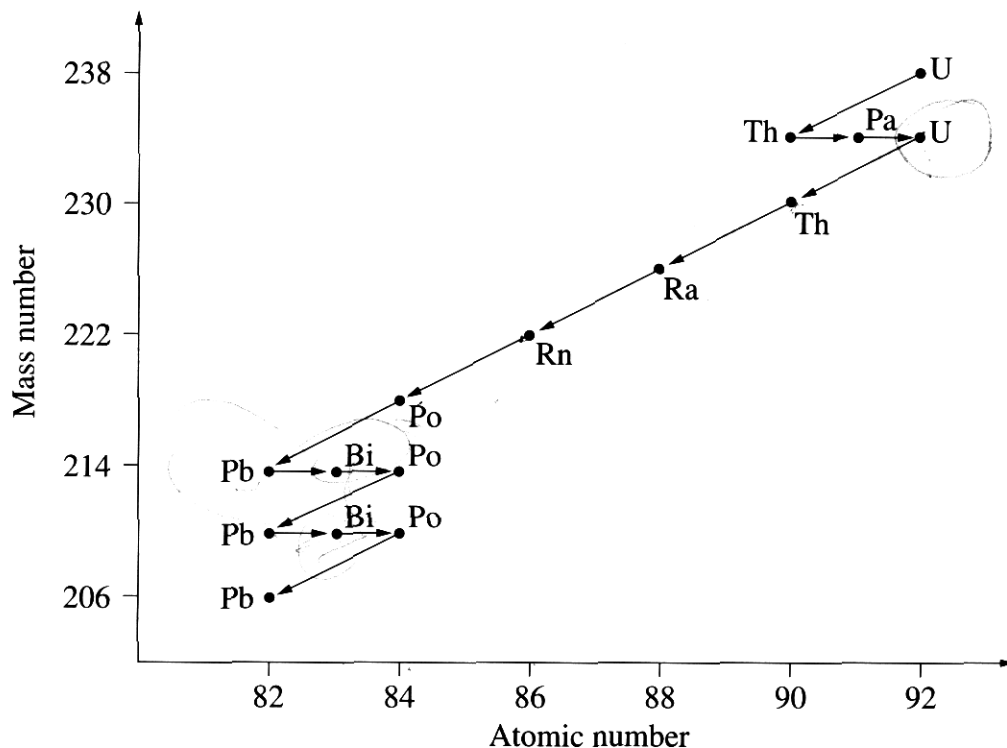
..... A nucleus is unstable in the conditions in which will make
it into an isotope. This is in the rearrangement and
splitting of the nucleus which will make it radioactive.
.....
.....
.....

Question 19 continues on page 14

Question 19 (continued)

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

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

An unstable isotope undergoes radioactive decay by varying its mass spontaneously till it reaches its correct mass that matches its atomic number. It will continue to proceed until it reaches the correct element. Eg. The second U is unstable having a mass number of 236 instead of 238. Also First Pb is unstable being 214 instead of mass number 207. Isotopes include Bi and Po

End of Question 19