**HOMEWORK 3.4 – NUCLEAR RADIATION**

1. A student made some statements about particles found in atoms.

|  |  |
| --- | --- |
| A. | Relative mass is almost zero |
| B. | Charge = 1+ |
| C. | Charge = 0 |
| D. | Found inside the nucleus |
| E. | Relative mass = 1 |

Identify the **two** statements which apply to **both** a proton and a neutron. (1 mark)

2. The stability of the nucleus of an ion depends on the ratio of

A mass : charge

B neutrons : protons

C neutrons : electrons

D protons : electrons. (1 mark)

3. There are three different types of neon atom.

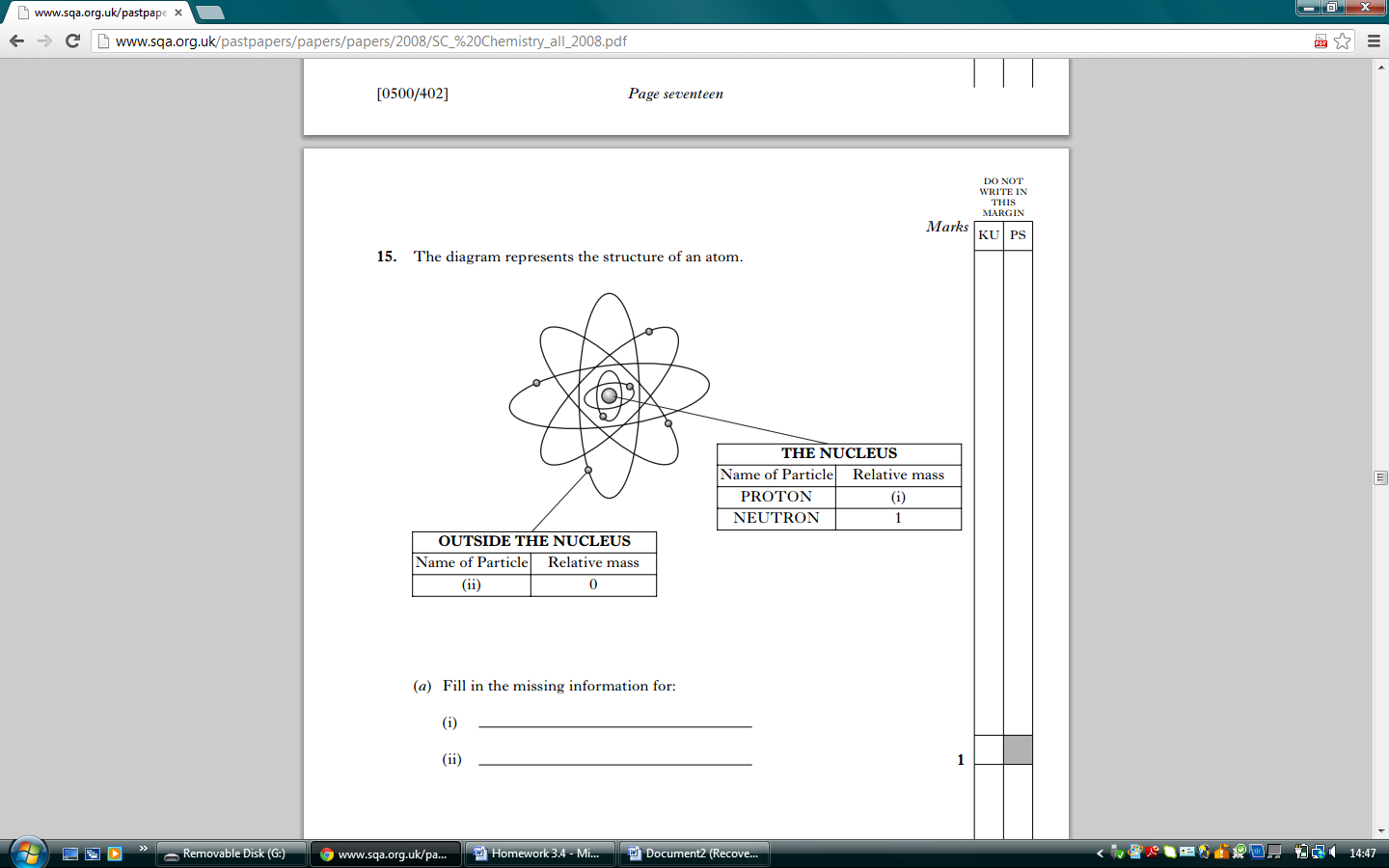
|  |  |  |  |
| --- | --- | --- | --- |
| TYPE OF ATOM | NUMBER OF PROTONS | NUMBER OF NEUTRONS | NUMBER OF ELECTRONS |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Copy and complete the table to show the numbers of protons, neutrons and electrons in each neon atom.

(1 mark)

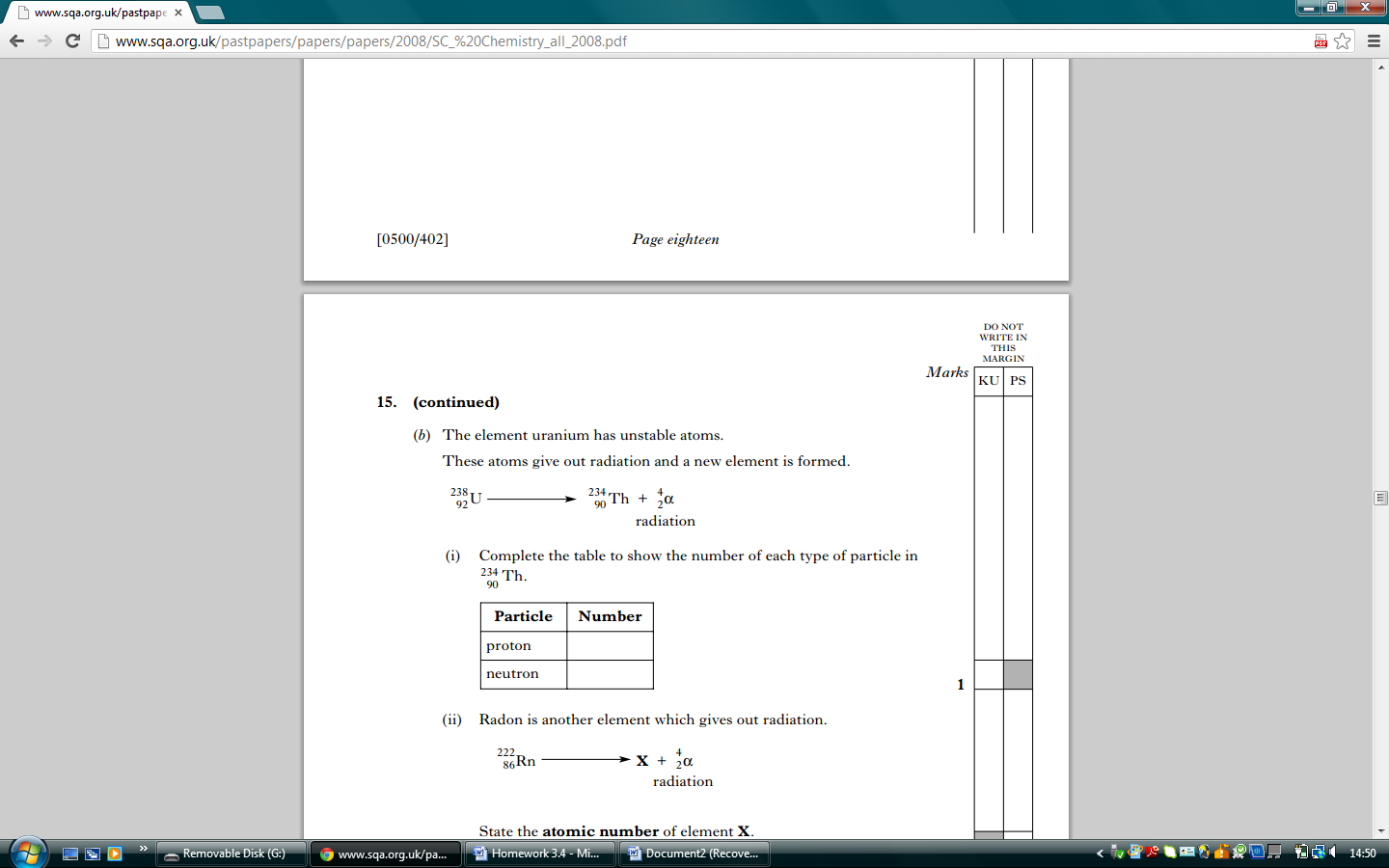
1. What term is used to describe these different types of neon atoms? (1 mark)

4. The diagram represents the structure of an atom.



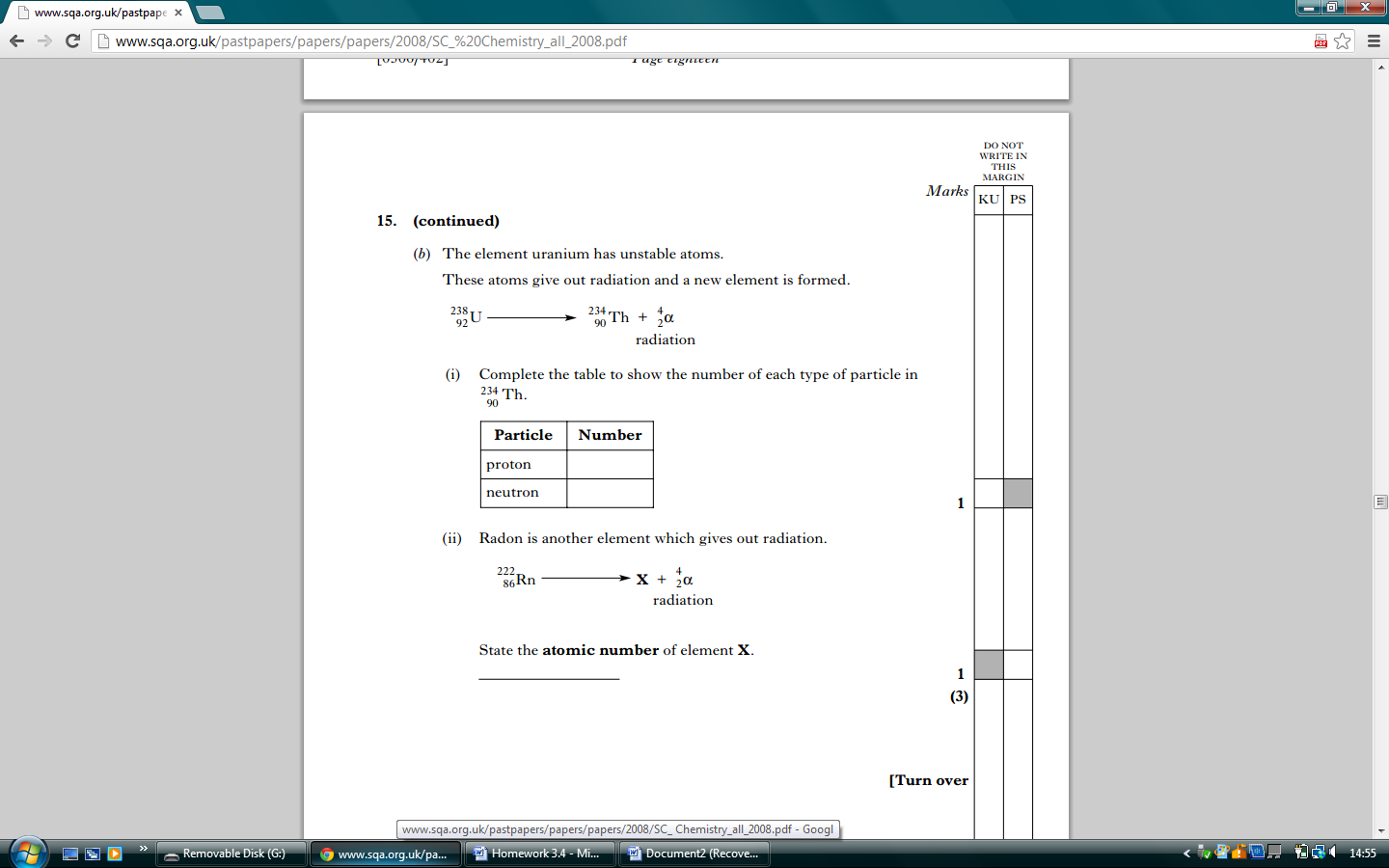
a) Fill in the missing information for (i) and (ii) (1 mark)

b) The element uranium has unstable atoms. These atoms give out radiation and a new element is formed.



c) State the number of protons and neutrons for the particle 23490Th. (1 mark)

d) Radon is another element which gives out radiation.



Write the nucleic notation for element X. (1 mark)

5. Name the three types of radiation emitted from radioisotopes. (1 mark)

6. Give two examples of applications of radioisotopes. (2 marks)

TOTAL = 10 MARKS