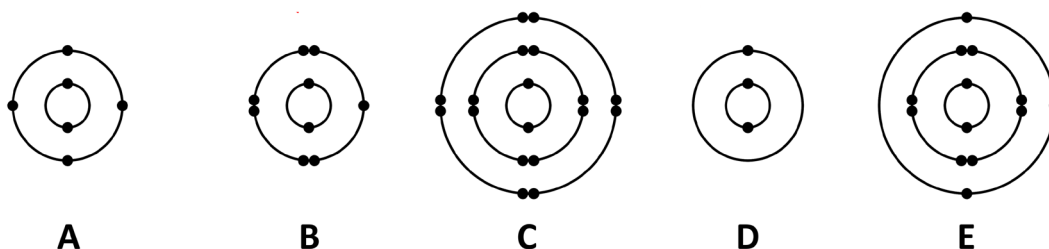


Name:

Class:



The electronic structures of five atoms, A, B, C, D and E, are shown.



Answer the following questions about these electronic structures.

Each electronic structure may be used once, more than once or not at all.

State which electronic structure, A, B, C, D or E, represents an atom:

- i. of an element in Group III of the Periodic Table **E**
- ii. of a monoatomic gas **C**
- iii. of carbon **A**
- iv. which has 18 protons **C**
- v. which forms a stable ion with a single negative charge **B**

Describe a test to show that a gas is oxygen.

Test: glowing splint.

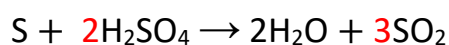
Positive result: the splint relights or reignites if the gas is oxygen.

Describe a test to show that a gas is chlorine.

Test: moist/damp blue litmus paper.

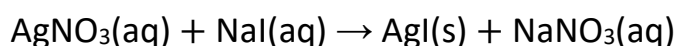
Positive result: the damp blue litmus paper will turn red and is then bleached white.

Complete the chemical equation for this reaction.



Calculate the percentage atom economy for the production of silver iodide in this reaction.

The equation for the reaction is:



Give your answer to 3 significant figures.

$$\text{Atom economy} = \frac{235}{320} \times 100$$

$$\text{Atom economy} = 73.4 \%$$

$$\text{Percentage atom economy} = \mathbf{73.4 \%}$$