

Section A [14 marks]

Answer all questions. Write your answers in the spaces provided.

1 Fig. 1.1 represents the interconversion of states among the three states of matter.

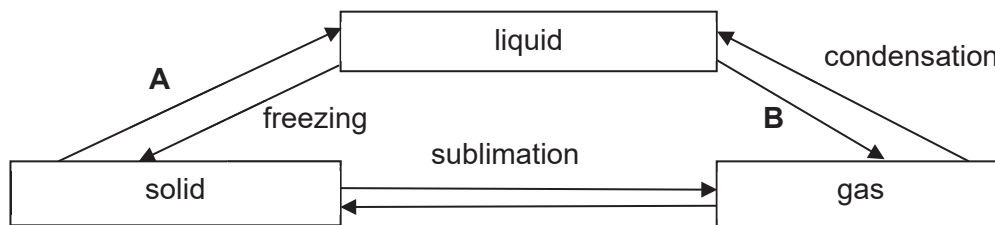


Fig. 1.1

(a) Name the processes labelled **A** and **B**.

process **A** process **B** [1]

(b) Using the Kinetic Particle Theory, describe the changes in the arrangement and the movement of particles that occurred during process **A**.

arrangement of particles [1]

movement of particles [1]

2 Fig. 2.1 shows the electronic structures of six atoms, **A**, **B**, **C**, **D**, **E** and **F**.

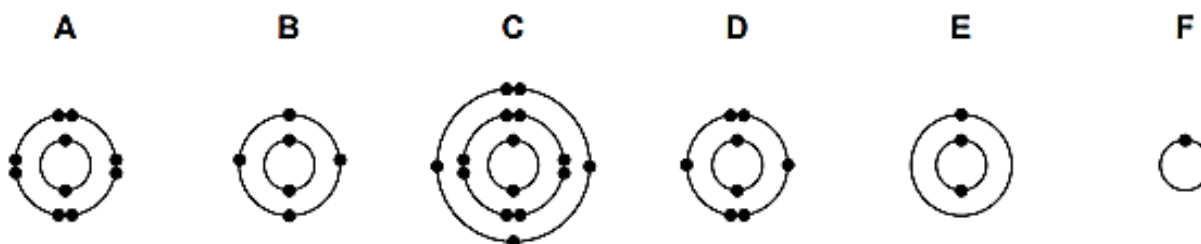
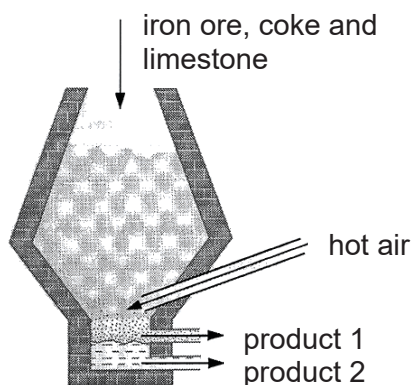


Fig. 2.1

Which structures **A**, **B**, **C**, **D**, **E** or **F**, represents

- (a) an atom of an alkali metal, [1]
- (b) an atom of a noble gas, [1]
- (c) forms a diatomic molecule, [1]
- (d) an atom containing eight protons. [1]

3 A blast furnace can be used to extract iron from its ore.



(a) Name the iron ore from which iron is extracted.

..... [1]

(b) Why is limestone added to the blast furnace?

..... [1]

(c) Name the two products that are extracted from the base of the furnace.

product 1: product 2: [1]

4 Pentane, C_5H_{12} , is a hydrocarbon which exists in one of the fractions in crude oil. Pentane may be used in the manufacture of other chemicals. The following equation represents one possible reaction that may occur.



(a) Explain what is meant by the term *hydrocarbon*.

..... [1]

(b) Name the process to obtain pentane from crude oil.

..... [1]

(c) (i) Name the process represented by the chemical reaction.

..... [1]

(ii) Draw the structural formula of a molecule of compound Y.

[1]