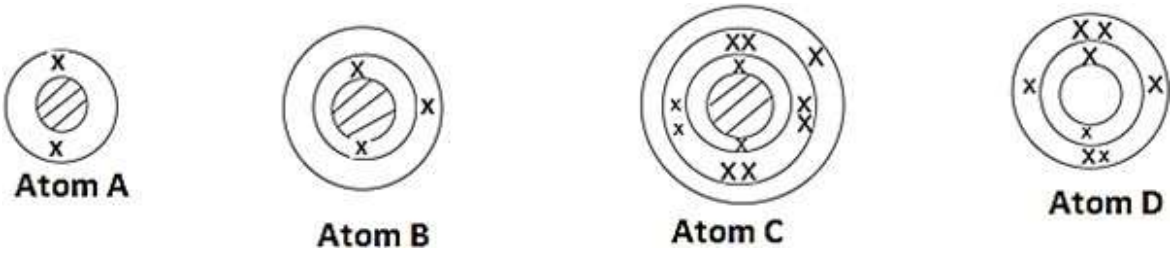
FORM FOUR CLUSTER KCSE MODEL5

CHEMISTRY PAPER 2 QUESTIONS

1. a) The diagram 1 below shows the electronic structure of four different atoms.



i) Name the two sub atomic particles in the nucleus of an atom. (1mark)

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ii) Why is it that there is no overall electrical charge on each atom. (1mark)

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iii) Why is atom A unreactive. (1mark)

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iv) Which two of these atoms have similar chemical properties. Give a reason for your answer. (2marks) .....

b) The table 1 shows some properties of gases in the earth's atmosphere.

Table I

Gases	Melting point	Boiling point
Argon	-189	-186
Carbon (IV) oxide	-78	-78
Helium	-272	-269
Neon	-249	-246
Nitrogen	-210	-196
Oxygen	-219	-183

The gases can be separated using the steps outlined below.
Step I – Removing carbon (IV) oxide.

Step II – Removing the remaining gases by cooling the gases to – 2000c.
Step III – Removing the gases that do not liquefy / condense.
Step IV – Allowing the liquefied gases to warm up.
i) Suggest one reason why carbon (IV) oxide is removed before the gases are cooled at 2000c. (1mark)
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ii) Name gases that does not liquefy / condense when the air mixture is cooled to -2000c. (1mark)
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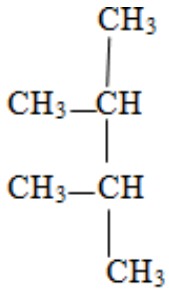
i) The oxygen separated by this process contains another gas.

Name the gas and a reason for your answer. (2marks)

2. a) Give the names of the following compounds.

i)



(1mark)

ii) $CH_3CHCHCH_2CH_3$ (1mark)

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iii) $CH_3CH_2C \equiv C\ CH_2CH_2\ CH_3$ (1mark)

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b) Describe a chemical test that could be used in order to distinguish between propane and propyne (2marks)

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c) Below is a list of some simple members of a homologous series.

Table 2

Formula	Physical state at room temperature
CH_4	Gas
C_2H_4	Gas
C_3H_8	Gas
C_4H_{10}	Gas
C_5H_{12}	Liquid
C_6H_{14}	Liquid

i) What is meant by the term homologous series. (1mark)

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ii) State two characteristics of a homologous series. (1mark)

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iii) Explain the variation in physical state of the members. (1mark)

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iv) Draw and name isomers of C4H10. (2marks)

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