# AN ROINN OIDEACHAIS

**(Department of Education.)**

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## LEAVING CERTIFICATE EXAMINATION, 1943.

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## CHEMISTRY.—PASS.

*WEDNESDAY*, 16*th JUNE*—MORNING, 10 TO 12.

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Not more than *six* questions to be attempted. All questions are of equal value.

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1. Write an equation to explain the action of heat on potassium chlorate. How may the temperature at which this reaction takes place be lowered ?

0·20 gram of a mixture of potassium chlorate and potassium chloride when strongly heated gave 35 cc. of dry oxygen measured at N.T.P.

Calculate the percentage of potassium chlorate in the mixture. (Atomic weights : K ; 39. Cl ; 35·5. O ; 16. Gram molecular volume ; 22·4 litres.

2. Name the constituents of the atmosphere.

What reasons can you give for believing that air is a mixture ?

3. What is meant by water of crystallisation ?

Crystalline carbonate of soda contains 10 molecules of water of crystallisation. Calculate the percentage of water in that compound.

(Atomic weights : Na ; 23. C ; 12. O ; 16).

4. Describe a method for the preparation of ammonia in the laboratory, giving a sketch of the apparatus you would use.

What happens on heating (*a*) ammonium chloride, and (*b*) ammonium nitrate ?

5. Where is sulphur found ?

From sulphur, how would you obtain (*a*) sulphur trioxide and (*b*) sulphuric acid ?

6. How may carbon dioxide be prepared ?

Describe the action of carbon dioxide on (*a*) caustic soda and (*b*) lime water.

7. How would you obtain (*a*) copper sulphate from copper and (*b*) copper from copper sulphate ?

8. Sketch an apparatus for the preparation of chlorine in the laboratory, and explain how it should be used.

From chlorine how would you obtain (*a*) hydrochloric acid and (*b*) bleaching powder ?

9. State what you know about the allotropes of phosphorus.

10. Explain the terms valency, molecular weight, atomic weight and equivalent.

Describe a method for finding the equivalent of magnesium.

11. What is meant by (*a*) oxidation and (*b*) reduction ?

Show that the conversion of ferrous chloride into ferric chloride is an oxidation.

12. State what you know about the oxides and sulphates of *any two* of the following metals : (*a*) aluminium, (*b*) tin, (*c*) iron.