



IBMYP Chemistry Sample Paper 1



WE GOT CHEMISTRY

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Group 5: Chemistry On-Screen Examination

Total Marks: 100

Instructions

- The on-screen examination has not yet started.
- Your time will begin once you have clicked the Start button below. Do not click Start until instructed to do so.
- Before the examination begins you are given 5 minutes to become familiar with its structure. Please navigate around the examination, taking note of the length of each task and question. You have 2 hours to complete the examination.
- There are 10 separate questions in this examination. Each question may have sub-parts. Answer all the questions in the response boxes provided. The maximum mark for this examination is 100 marks.
- As you progress through the questions, your answers are automatically saved.
- When 2 hours has ended, you will no longer be able to answer any questions.

Question 1: 4 marks

1) Toys have been made using various materials throughout history. One such material is marble, which has been used to create intricate toy figurines. Marble is a metamorphic rock composed primarily of calcium carbonate.

a) State the chemical formula for calcium carbonate. (1 mark)

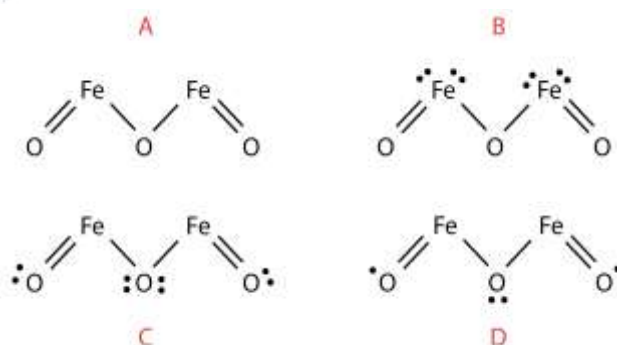
Answer: CaCO_3

b) Calcium and Iron are used to make other toys. Identify the group and period of both elements. (2 marks)

Answer:

- Calcium: Group 2 Period 4
- Iron: Group 8 Period 4

c) Oxides are compounds formed when elements react with oxygen. One commonly used oxide in various applications, including toys, is iron oxide (Fe_2O_3), also known as rust. Rust has a simple molecular structure. Select the diagram that shows the Lewis structure of iron oxide (Fe_2O_3). (1 mark)



Answer: D

Question 2: 11 marks

- 2) Graphite is a unique form of carbon with distinct properties. It is commonly used as a lubricant due to its layered structure, which allows for easy slippage between the layers. The properties of graphite can vary based on its structure and purity.

Here are the properties of four different types of carbon-based materials, including graphite:

Type of Carbon Based Material	% Carbon	% Impurities	Properties
Material A	50	50	Soft and crumbly
Material B	75	25	Moderately hard and slippery
Material C	90	10	Extremely hard and brittle
Material D	95	5	Hard and smooth

- a) Select the term used to describe the mixture of carbon atoms in graphite. (1 mark)
- Allotrope
 - Alloy
 - Compound
 - Ester

Answer: Allotrope

- b) Suggest why material A and material D would be unsuitable for use as a lubricant. (2 marks)



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