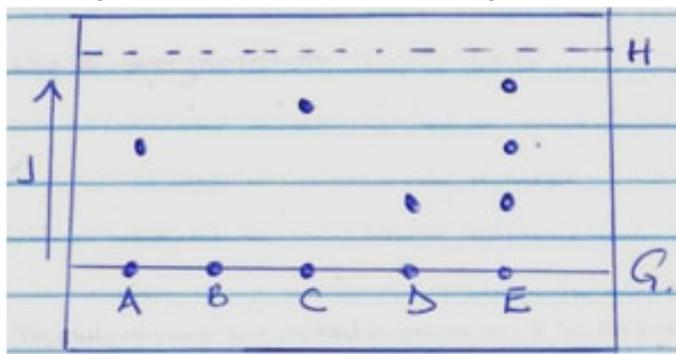


Chemistry Paper 1 Form 3 Questions and Answers - End Term 2 Exams 2021

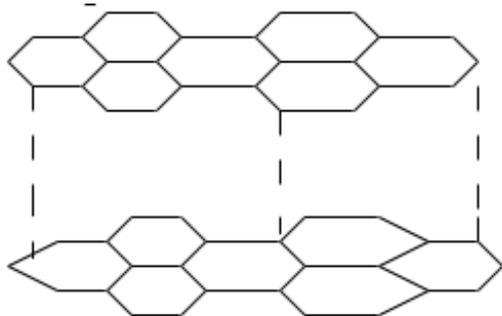
Chemistry Paper 1 Form 3 End Term 2 Exams 2021 with Marking Schemes

Questions

1. The diagram below shows Chromatograms for five different dyes.



- Name one condition required to separate the chromatograms present in a dye. (1 mk)
 - What is meant by the solvent front? . (1 mk)
 - Which chromatograms are present in dye E. (1 mk)
 - Name two industrial applications of chromatography. (2 mks)
2. An element Y has the electronic configuration 2.8.5
- Identify its period _____ (1mk)
 - Write a formula of the most stable anion formed when U ionizes. (1mk)
 - Explain the differences between the atomic radius of element Y and its ionic radius. (2mks)
- 3.
- What is meant by allotropy? (1 mark)
 - The diagram below shows the structure of one of the allotropes of carbon



- Identify the allotrope (½mk)
 - State one property of the above allotrope and explain how it is related to its structure. (1½mk)
4. Study the flow chart below and answer the questions that follow.

- i. Liquid X (1 mark)
 ii. Gas Y..... (1 mark)
- b. When lead (ii) Nitrate crystals are heated, they decrepitate and decompose, what is meant by the term decrepitating? (1 mark)
24. Calculate the number of Al^{3+} ions released when 30cm^3 of 0.1M of Aluminium Sulphate is dissolved in water. ($L = 6.024 \times 10^{23}$). (3mks)

Marking Scheme

- The chromatogram must have different solubility rate. (1 mk)
 - The dyes must have different adsorption on the filter paper. (1 mk)
 - It is the furthest distance reached by the solvent on the adsorbent material (or filter paper). (1 mk)
 - It is indicated as H on the diagram. (1 mk)
 - Red, blue and green. (1 mk) (if only two are correct)
 - D and A
 - Detecting and identifying poisonous substances present in food substances. (1 mk)
 - Separation of dyes into pure colours. (1 mk)
- Period 3
 - Y^{3-}
 - Ionic radius is large because incoming electrons repelled by energy levels.
- Existence of a substance in two or more forms without a change of state (1 mk)
 - Graphite($\frac{1}{2}$ mk)
 - Conducts electricity, (1 mk) contains delocalised electrons. ($\frac{1}{2}$ mk) OR soft and slippery (1 mk) Hexagonal layer are held together by weak van der waals forces($\frac{1}{2}$ mk)(total 3 marks)
- Zinc oxide
 - $\text{Zn}^{2+}_{(\text{aq})} + 2\text{OH}^{-}_{(\text{aq})} \rightarrow \text{Zn}(\text{OH})_{2(\text{s})}$
 - $\text{Zn}(\text{NH}_3)_4^{2+}$
- Apart from their location, state any two differences between a proton and an electron. (2 marks)
 - A proton is positively charged whereas an electron is negatively charged.
 The mass of a proton is/atomic mass units whereas that of an electron is a.m.u
 - Protons and neutrons are found in the nucleus of an atom. State two important roles played by of neutrons in the nucleus of an atom. (2 mks)
 - Prevent repulsion between the positively charged protons.
 - Provide weight hence stability of the atom
- Give equations to show the reactions that take place when;
 - iron reacts with steam. (1 mark)
 $3\text{Fe}_{(\text{s})} + 4\text{H}_2\text{O}_{(\text{g})} \rightarrow \text{Fe}_3\text{O}_{4(\text{s})} + 4\text{H}_{2(\text{g})}$
 - Name and give one industrial use of the gas produced in the reactions in (i) above. (1mk)
 - Hydrogen.
 - Uses: (Any one)**
 - Industrial manufacture of hydrochloric acid