**MID-TERM 1 2021**

**FORM 3**

**CHEMISTRY**

**TIME: 1 HOUR**

**NAME: …………………………………………………………………………**

**ADM NUMBER: ……………………**

***Answer ALL questions in the spaces provided (30 marks)***

**1.**

a) State Boyle’s law. (1 mark)

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b) A balloon used in a meteorological station contains 250dm³ of helium at 25°C and 100 Kpa pressure. Calculate the temperature when its volume reaches 400dm³ and 80kpa pressure. (4marks)

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**2.**

a) Name the method used in separating colored mixtures. (1 mark)

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b) The coloured mixtures separated using the method named above is based on two properties. Name the properties. (1 mark)

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**3.** Describe how a sample of Zinc carbonate can be prepared from the following reagents; Zinc (II) oxide, dilute nitric (V) acid, water and potassium carbonate solid. (3 marks)

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**4.** A student added very dilute Sulphuric (VI) acid to three substances and recorded the observations shown in the table below.



From which tests are the observations wrong? Explain. (3 marks)

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**5.** A Sample of compound T containing sulphur and oxygen requires 28 seconds to diffuse through a hole. A similar volume of oxygen gas pass through the same hole in 20 seconds. Determine the molecular mass of J. (S = 32, O = 16) (2 marks)

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**6.** Study the information given below and use it to answer the questions that follows.



Select

i).An oxide with giant atomic structure. (1 mark)

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ii) An oxide which dissolves in water to form an acidic solution. (1 mark)

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**7.** A gas occupies 4 litres at 250K and 152mmHg pressure. At what pressure will its volume be halved, if the temperature then is 2270C? (3 marks)

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**8.**

(a) State Graham’s law of diffusion. (1mk)

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(b) **60cm**3 of oxygen diffused through a porous plate in **20 seconds**. How long will it take **120cm3** of carbon (iv) oxide gas to diffuse through the same plate under the same conditions?

**(C=12 , O=16)** (2mks)

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**9.** Substance L, M, N and P have the following properties.



(a).Select the letter which represents a substance which is suitable for making kettle handles (1mk)

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(b) Which letter represents a substance which is likely to be sodium chloride? (1mk)

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(c) Name the bond structure and bond type likely to be in L. (1mk)

(i) Bond structure

………………………………………………………………………………………………………

(ii) Bond type

………………………………………………………………………………………………………

**10.**

(a)What is meant by allotropy? (1 mark)

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(b) The diagram below shows the structure of one allotropes of carbon



i).Identify the allotrope (1 mark)

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(ii) State one property of the above allotrope and explain how it is related to its structure.(2mks)

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