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EXAMINER	KJW	GRADE 8	Time	1,5 hours
MODERATOR	YK	June Exam 2009	TOTAL	115 MARKS

INSTRUCTIONS

- 1. A periodic table is provided attached to this script.
- 2. See data provided below.
- 3. Answer question 1 on the multiple choice answer sheet provided.
- 4. Draw the graph for question 7 on the graph paper provided.
- 5. Answer all the other questions on the lined paper provided.
- 6. Show all your working in calculations.

DATA

$$D = m/V K = {}^{\circ}C + 273$$

QUESTION 1

- 1.1 Which is **not** one of the statements which make up the kinetic theory?
 - A All matter is made up of tiny particles.
 - B When the temperature rises, the particles expand.
 - C The particles are in constant random motion.
 - E When the temperature increases the particles move faster.
- 1.2 The apparatus below was set up to show that different gases diffuse at different rates. Which statement is true? rubber stopper



- A Substance x is hydrochloric acid.
- B Substance y is ammonia.
- C Substance x diffuses slower than substance z
- D Substance x is ammonia.

- 1.3 -200° C is equal to
 - A -73 K
 - B 200 K
 - C 73 K
 - D -473 K
- 1.4 When a solid changes directly into a gas, we call the process
 - A diffusion
 - B sublimation
 - C condensation
 - D boiling
- 1.5 The element tin has the symbol
 - A T
 - B Tn
 - C S
 - D Sn

1.6 The formula of iron(III) chloride is

- A FeCl₃
- B IrCl₃
- C Fe₃Cl
- D FeCl
- 1.7 As a first step, sugar water solution can be separated to obtain both the sugar and the water by
 - A fractional distillation
 - B evaporation
 - C filtration
 - D distillation
- 1.8 200 mm is equal to
 - A 20 m
 - B 2 m
 - C 0,2 m
 - D 200 000 m
- 1.9 The reading on a burette is 12 ml. If 42 ml is run out of it the new reading is
 - A 12 ml
 - B 42 ml
 - C 54 ml
 - D none of the above readings.

- A nano-metre is equal to 1.10
 - 10⁻³ m 10⁻⁶ m Α
 - В
 - 10⁻⁹ m С
 - $10^{6} \, {\rm m}$ D
- An object has a mass of 20 g and a volume of 2 cm^3 . Its density in g.cm⁻³ will 1.11 therefore be
 - 40 A
 - В 20
 - С 10
 - D 0,1
- 1.12 The graph which best shows the relationship between the total price you pay and how many loaves of bread you buy is



 $(12 \times 2 = 24)$

QUESTION 2

Write down the number of the question and next to it the correct word or term for each of the following.

Example Changing from solid to liquid - melting

- 2.1 Two liquids which do not dissolve in each other.
- 2.2 A substance containing two or more elements chemically combined.
- 2.3 Two hydrogen atoms bonded to an oxygen atom is a of water.
- 2.4 A substance which cannot be split into simpler substances by chemical means.
- 2.5 The force with which the earth attracts an object near it.
- The random motion of ash in smoke is commonly known as _____ motion. 2.6

 $(6 \ x \ 1 = 6)$

QUESTION 3

Write down the formulae for the following compounds.

- 3.1 calcium oxide
- 3.2 sodium sulphide
- 3.3 aluminium bromide
- 3.4 carbon(II)oxide
- 3.5 zinc nitride

 $(5 \ x \ 2 = 10)$

QUESTION 4

4.1	Draw a diagram of a pipette.	(2)
4.2	What is the pipette used for?	(2)
4.3	Measure and record the length of the line below.	(3)

4.4 Complete the table below.

Name	Prefix
tera	Т
4.4.1	μ
giga	4.4.2
pico	4.4.3

4.5 The reading on a measuring cylinder with some water in it is 40 ml. Fifty ball bearings are placed in it so that they are submerged and the new reading is 75 ml. Calculate the volume of 1 ball bearing in ml (4)

QUESTION 5

Answer this question by writing down the question number and next to it the correct symbol or name of the element.

SYMBOL	NAME
Не	5.1
5.2	Chromium
K	5.3
5.4	Silicon
Р	5.5

4

(3)

(5)

QUESTION 6

6.1	Write down 4 properties of metals.	(4)
6.2	Where are metals found in the periodic table?	(1)
6.3	Give one metal which has a property not usually associated with metals	
	and state what this property is.	(2)

QUESTION 7

An object has a mass of 5 kg on the Earth.	
What is its mass in space?	(2)
What is its weight on the Earth?	(2)
What are the SI units for the following quantities?	
volume	
length	
time	
mass	(4)
	An object has a mass of 5 kg on the Earth. What is its mass in space? What is its weight on the Earth? What are the SI units for the following quantities? volume length time mass

QUESTION 8

Different size blocks of iron are taken and both their mass and volume are measured and tabulated below. (One set of values is inaccurately recorded.)

Volume in cm ³	0	20	40	60	80	100	120	130
Mass in g	0	155	300	460	615	720	925	1000

8.1	Plot a graph of volume against mass on the graph paper provided	$\langle \mathbf{O} \rangle$
	with volume on the horizontal axis and label the axes correctly.	(8)
8.2	Which volume corresponds to a mass which was measured very	
	inaccurately?	(1)
8.3	What mathematical relationship exists between the mass and volume	
	as indicated by the graph?	(1)
8.4	What mathematical relationship exists between the mass and the	
	density of the different blocks?	(1)
8.5	Showing all your working, calculate the density of the 40 cm ³ block of iron	(4)
86	Using your answer to question 8.5, calculate the volume of a 6.0 kg	(-)
0.0	Using your answer to question 8.5, calculate the volume of a 0,0 kg	
	Iron shot put.	(4)

QUESTION 9

9.1	Explain in terms of particles why the pressure exerted by a gas in an enclosed space increases when the temperature is increased.	(3)
9.2	Describe a solid in terms of its particles.	(3)
9.3	A substance melts at -10 $^{\circ}$ C and boils at 70 $^{\circ}$ C. What is the phase of the substance at room temperature?	(2)

QUESTION 10

10.1	What type of mixture would you separate using a centrifuge? Give an example.	(2)
10.2	A mixture of iron filings, sugar and water is stirred and then filtered.	

- 10.2.1 What particle(s) is/are contained in the filtrate? (2)(2)
- 10.2.2 What particle(s) is/are contained in the residue?
- 10.2.3 How else might the iron filings have been separated from the mixture? (2)
- 10.3 A fellow student assembled the apparatus below to demonstrate a science experiment.



HEAT

10.3.1 What is the aim of the experiment? (2)10.3.2 Identify the solute in the above experiment. (1)10.3.3 What begins to form around the rim of the evaporating dish? (1)10.3.4 Why do you think a steam bath is used to heat the sugar solution rather than heating the evaporating dish directly over a Bunsen burner? (2)

TOTAL 115 MARKS