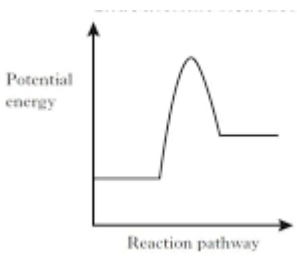
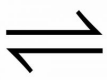
Q&A List - GCSE Combined Since - Chemistry Paper 2

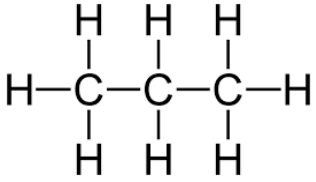
Part 5 - Energy Changes

No.	Question	Answer
1	Energy is _____ in chemical reactions.	Transferred
2	If a reaction transfers energy to the surroundings, the product molecules must have _____ energy than the reactants.	Less
3	Exothermic reactions transfer energy to their surroundings and the temperature of the surroundings _____.	Increases
4	Give three types of reaction that are exothermic.	1 neutralisation 2 combustion 3 Group 1 metals + water
5	Give two everyday uses of exothermic reactions.	1 Hand warmers 2 Self heating cans
6	Endothermic reaction takes in energy from its surroundings and the temperature of the surroundings _____.	Decreases
7	Give two types of reactions that produce endothermic reactions.	1 thermal decomposition 2 citric acid and sodium hydrogen carbonate
8	Give an everyday use of endothermic reactions.	Cool packs
9	You can determine whether a reaction is exothermic or endothermic by mixing the reactants in a polystyrene cup and measuring the _____ _____.	Temperature change
10	What is the minimum energy needed for a reaction to occur when particles collide?	Activation energy
11	A reaction profile starts at the energy level of the _____.	Reactants
12	A reaction profile ends at the energy level of the _____.	Products
13	Is this reaction profile showing an exothermic or endothermic reaction? 	endothermic

Part 6 - Rates & Reversible

No.	Question	Answer
1	In order for a reaction to happen the particles must _____ with enough energy.	Collide
2	What is the minimum amount of energy needed for a reaction to occur called?	Activation Energy
3	You can measure the rate of a reaction by dividing the amount of product made or the amount of reactant used up by what?	Time
4	If a reaction makes a precipitate, you can measure the rate by observing a cross through the solution and timing how long it takes for what to happen?	The cross to disappear
5	If the reaction produces a gas, you can measure how much is made by using what piece of apparatus?	Gas syringe
6	Why does increasing the temperature of a reaction increase its rate?	1. Particles move faster and collide more often. 2. Particles have more energy so have enough activation energy.
7	Increasing the pressure of gases or the concentration of liquids speeds up a reaction because the particles are _____ _____ which leads to more frequent successful collisions.	Closer together
8	How can you increase the rate of a reaction involving solids?	Increase the surface area
9	A catalyst speeds up a reaction without being _____.	Used up
10	Catalysts provide an alternative pathway for the reaction with a lower _____ _____.	Activation energy
11	On a rate of reaction graph a faster reaction has a _____ gradient.	Steeper
12	At the start of a reaction the speed is always _____.	fastest
13	What do you call a reaction in which the products can react to re-form the original reactants?	Reversible
14	What is the symbol used instead of → in an equation to show this type of reaction?	
15	Equilibrium is reached when the forward and backward reaction is happening at the _____ _____.	Same speed
16	Equilibrium can only be reached in a _____ system.	Closed
17	If one direction is endothermic, the other direction will be _____.	Exothermic

Part 7 - Organic Chemsitry

No.	Question	Answer
1	What elements are hydrocarbons made of?	Carbon and hydrogen
2	Draw the displayed structure of propane.	
3	How many carbon atoms are in butane and methane?	1 butane – 4 2 methane – 1
4	What is the general formula for alkanes?	C_nH_{2n+2}
5	Alkenes are _____ reactive than alkanes.	More
6	What can be made from alkenes?	Polymers
7	What chemical do you add to test for alkenes?	Bromine water
8	What colour change will you see when this chemical is added to an alkene?	Orange to colourless
9	What happens to the viscosity of the alkanes as they get longer?	Increases
10	What happens to the boiling point of the alkanes as they get longer?	Increases
11	What happens to the flammability of the alkanes as they get longer?	Decreases
12	What is produced during the combustion of alkanes?	Carbon dioxide and water
13	During the combustion of an alkane, the carbon and hydrogen are _____.	Oxidised
14	*Write a balanced symbol equation for the combustion of ethane (C_2H_6).*	$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6\ H_2O$
15	What fossil fuel is a mixture of hydrocarbons?	Crude Oil
16	Crude oil was formed from the dead remains of what?	Dead sea creatures/plants
17	Crude oil can be separated by fractional distillation because the different alkane lengths have different _____ _____.	Boiling points

18	In fractional distillation, the first step is to _____ the crude oil.	Vaporise/Heat
19	Each fraction will _____ when it reaches a chamber where the temperature is lower than its boiling point.	Condense
20	What are short alkanes used as?	Fuels
21	Kerosene can be separated from crude oil. Name three others.	LPG, fuel oil, naphtha, diesel, petrol
22	Name two useful materials made from petrochemicals. (not those separated from crude oil)	Polymers, detergents, solvents, lubricants, plastics
23	A family of similar chemicals is called a _____ series.	Homologous
24	Cracking breaks a long, less useful hydrocarbon into what?	Shorter more useful ones
25	Cracking is an example of a _____ _____ reaction.	Thermal decomposition
26	What are the conditions for catalytic cracking?	Catalyst, high temperatures
27	What are the conditions for steam cracking?	Steam, very high temperatures
28	*Write a balanced symbol equation to show the reaction that changes decane ($C_{10}H_{22}$) into ethene (C_2H_4), and octane (C_8H_{18}).*	$C_{10}H_{22} \rightarrow C_2H_{4+} + C_8H_{18}$

Part 8 - Chemical Analysis

No.	Question	Answer
1	What does a pure compound contain?	Only one type of substance
2	A pure compound has a specific _____ _____.	Melting/boiling point
3	A mixture of components that all have a specific function is called a _____.	Formulation
4	Give three types of these mixtures.	1 Medicines 2 Food 3 cosmetics
5	Chromatography can be used to _____ mixtures.	Separate

6	It always includes a mobile phase and a _____ phase.	Stationary
7	How many spots will a pure substance produce on a chromatogram?	One
8	How do you calculate the Rf value of a spot on a chromatogram?	Distance moved by spot Distance moved by solvent
9	Rf values change depending on the _____ used.	Solvent
10	On a chromatogram the start line is always drawn in _____ because it doesn't dissolve in the solvent.	Pencil
11	What gas is present if it turns damp blue litmus paper white (Bleaches it)?	Chlorine
12	What gas is present if a glowing splint is relit when put into it?	Oxygen
13	What gas is present if you put a lit splint into it and it makes a squeaky pop?	Hydrogen
14	What gas is present if limewater turns cloudy when you bubble the gas through it?	Carbon dioxide

Part 9 - Chemistry of the Atmosphere

No.	Question	Answer
1	For the last 200 million years the Earth's atmosphere has contained: 80% _____ 20% _____	80% nitrogen 20% oxygen
2	The main gases in the early atmosphere were probably released by _____-.	Volcanoes
3	What happened to the water vapour in the atmosphere?	Condensed to form oceans
4	Why did levels of oxygen increase?	Released by plants carrying out photosynthesis
5	Give 3 reasons that carbon dioxide levels decreased.	Absorption by oceans Used by plants for photosynthesis Marine animals used the carbon dioxide to make their shells which then became limestone rocks
6	Name 3 greenhouse gases.	Carbon dioxide Methane water vapour
7	Burning more fossil fuels and fuels in cars produces more of which greenhouse gas?	Carbon dioxide

8	Which greenhouse gas is produced through farming cows and rice?	Methane
9	Give 4 consequences of the temperature of the Earth rising.	Polar ice caps/glaciers melting Changes in rainfall patterns Frequency and severity of storms increasing Changes in temperature may lead to habitats changing
10	The total amount of carbon dioxide and other greenhouse gases emitted over the full lifecycle of a product, service or event is called what?	Carbon footprint
11	How can the release of greenhouse gases be reduced?	1. Burn less fossil fuels/use renewable energy sources 2. Tax people/companies based on the CO_2 they produce
12	Why might a business be unwilling to reduce its production of greenhouse gases?	Can lead to reduced profits
13	What impurity is sometimes present in fuels?	Sulphur
14	Carbon monoxide, carbon (soot) and water are produced during _____ combustion.	Incomplete
15	Why is carbon monoxide a problem?	It is toxic (poisonous)
16	Name two gases that lead to acid rain.	Sulphur dioxide Oxides of nitrogen
17	What is caused by particulates in the air?	Breathing problems / global dimming

Part 10 - Using Resources

No.	Question	Answer
1	Give an example of what humans use natural resources for.	Energy (eg Wood), building materials (eg wood, sand), food (eg fruit/vegetables)
2	What does the word finite mean?	There is a limited supply
3	What does non-renewable mean?	It cannot be replaced
4	Sustainable development meets the needs of present society whilst taking into account the needs of _____ _____.	Future generations
5	Using waste materials to make new products is called what?	Recycling
6	Using a used product again for the same or a different use is known as what?	Reusing
7	Give an advantage of recycling.	Use less raw materials. Less waste to landfill

8	Give a disadvantage of recycling.	Need to be separated from other materials.
9	Give an advantage of reusing.	No new raw materials are needed. Less waste going to landfill
10	Give a disadvantage of reusing.	May get weaker. Some products can't be re-used
11	How are metals recycled?	Melted and cast into new shapes
12	List the four stages in a life cycle assessment.	1 Getting the raw materials 2 Manufacturing and packaging 3 Using the product 4 Product disposal
13	Why aren't life cycle objectives always objective?	Can be biased to confirm claims of a company
14	Why might part of a life cycle assessment be misused by a company?	May only show some impacts of the product on the environment
15	What is potable water?	Safe for humans to drink
16	Why is potable water not pure water?	It contains lots of dissolved substances eg chlorine and minerals
17	What type of water is used to make potable water in the UK?	Fresh water eg resevoirs/groundwater
18	What are the two steps to make potable water?	1 Filtration – removes large solids eg twigs 2 Sterilisation – chlorine added to kill microbes
19	In dry places, salt water can be used to make potable water, what process is used?	Desalination
20	You can find out the mass of dissolved substances in water by putting some on a watch glass and heating it up to evaporate the water using a _____ _____.	Water bath
21	What are the four steps used in waste water treatment?	1 screening 2 sedimentation 3 aerobic digestion 4 anaerobic digestion
22	What happens in step 1?	– removes large solids eg twigs
23	What happens in step 2?	– allowed to stand, heavier suspended solids sink to the bottom as sludge. The less dense effluent floats on top
24	What happens in step 3?	– air is pumped through the water (effluent) to encourage bacteria to break down organic matter including other microbes
25	What happens in step 4?	– sludge removed and broken down by anaerobic bacteria

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4	Give three types of reaction that are exothermic.	
5	Give two everyday uses of exothermic reactions.	
6	Endothermic reaction takes in energy from its surroundings and the temperature of the surroundings _____.	
7	Give two types of reactions that produce endothermic reactions.	
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9	You can determine whether a reaction is exothermic or endothermic by mixing the reactants in a polystyrene cup and measuring the _____ _____.	
10	What is the minimum energy needed for a reaction to occur when particles collide?	
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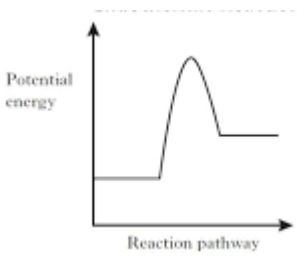
13	Is this reaction profile showing an exothermic or endothermic reaction? 	

TEST YOURSELF - Part 6 - Rates & Reversible

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1	In order for a reaction to happen the particles must _____ with enough energy.	
2	What is the minimum amount of energy needed for a reaction to occur called?	
3	You can measure the rate of a reaction by dividing the amount of product made or the amount of reactant used up by what?	
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7	Give an advantage of recycling.	
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10	Give a disadvantage of reusing.	
	How are metals recycled?	

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