

Term 1 Final Revision

Chapter 1 Final Questions

Multiple Choice

1	D
2	A
3	C
4	D
5	A
6	B
7	B
8	D
9	D
10	B
11	C
12	B
13	C
14	B
15	C
16	D
17	B
18	D
19	A
20	D

Short Answer questions

21. What are the 3 units for temperature?
°C (Celsius), K (Kelvin), °F (Fahrenheit)
22. Temperature measure what type of energy in particles?
Kinetic energy
23. Thermal energy moves from a cooler region to a warmer region. IS this statement true?
No.
24. What 2 types energy is thermal energy the sum of?
Kinetic and potential energy.
25. State the ways thermal energy can be transferred.
Conduction, convection and radiation.
26. What type of thermal energy transfers involves electromagnetic waves?
Radiation
27. A device which converts electric energy into thermal energy is....
A heating appliance.
28. What's the name of the metal inside a thermostat?
Bimetallic coil.
29. What types of energy is gasoline?
Chemical energy
30. Name a Thermal Conductor and Thermal Insulator.
Thermal conductor – Steel, aluminium etc. Thermal insulator – Glass, plastic, rubber etc.

Long answer questions

31. What is the difference between kinetic and potential energy?

Kinetic energy is the energy of a moving object. Potential energy is the stored energy of an object.

32. Explain the difference between thermal expansion and thermal contraction?

Thermal expansion is when a particles are heated up and move faster causing the gas to expand.

Thermal contraction is when gas a particles are cooled down and particles move slowly causing the gas to contract.

33. Convert 57oF into °C.

$$57-32/1.8 = 13.9^{\circ}\text{C}$$

34. Give an example of convection current.

Magma in the earth or movement of gas in the atmosphere or movement of water in the oceans.

35. Are heat engines efficient? Why or why not?

No, because only 20% of the gasoline into mechanical energy the rest is lost to the environment.

36. A football is kicked up in the air. Describe the different types of energy acting the football.

As its rising it is gaining potential energy. The movement of the ball is caused by kinetic energy. Potential builds up as it rises and kinetic energy reduces. At its highest point it has 0% kinetic energy and 100% potential energy until it drops where this gradually reverts.

37. Convert 0°C into Kelvins.

$$0^{\circ}\text{C} = 273 \text{ Kelvins}$$

38. What is the difference between Thermal energy and heat?

All objects have thermal energy (Kinetic energy + potential energy. But an object is heated when thermal energy is transferred from one object to another.

39. Prove that radiation is not in need of particles to be transfer heat.

The suns heat is transferred via radiation (electromagnetic waves) though spacer which is a vacuum (has no particles).

40. Give the definition of specific heat.

Amount of thermal energy required to increase the temperature of 1Kg of a material by 1°C.

Term 1 Final Revision

Chapter 2 Final Questions

Multiple Choice

1	C
2	C
3	A
4	C
5	A
6	D
7	C
8	C
9	D
10	A
11	A
12	A
13	D
14	C
15	C
16	C
17	A
18	B
19	B
20	C

Short Answer questions

21. What is the name given to the outer electron shell of an atom?

Valence Shell

22. How many electrons can the 2nd shell of an atom hold?

8 electrons

23. Which electron shell of an atom has the least energy?

The 1st shell.

24. Draw the electron dot diagram for Nitrogen.



25. In which type of chemical bonding does sharing of electrons take place?

Covalent bonding

26. Outline the Electronic configuration of Neon.

[2,8]

27. How many electrons are involved in the bonding pair in a Double Bond?

4 electrons

28. Is the bond stronger in F₂ or O₂?

O₂

29. How are electrons distributed in a metallic bond?

Sea of delocalised electrons

30. What charge does an atom have after gaining electrons?

Negative charge.

Long Answer questions

31. Why Water is considered a Polar molecule?

It has Oxygen which attracts electrons to itself making it partially negative and hydrogen is partially positive.

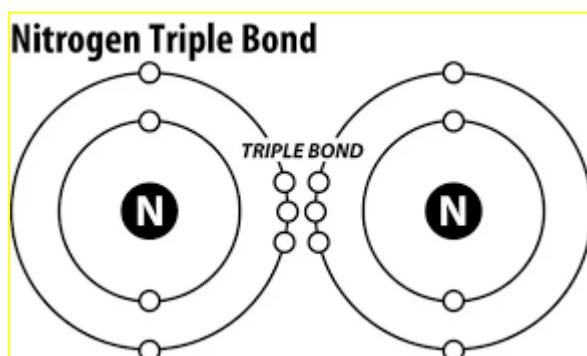
32. Relate the energy of an electron shell to its distance from the nucleus.

The further away the electron shell is from the nucleus the more energy it has as it's less under the influence of the nucleus due its distance.

33. Compare the reactivity of Chlorine and Argon.

Chlorine is more reactive than Argon as it requires one more electron to complete its outer (valence) shell. Argon has a full outer shell and doesn't require any electrons and therefore is unreactive.

34. Display clearly the electrons in a N₂ chemical bond.



35. State 3 different properties of a covalent compound.

Low melting and boiling point, poor conductor of heat and electricity, dull appearance, gas, liquid or solid, will not dissolve in water.

36. State 3 different properties of an ionic compound.

Solid crystals, high melting and boiling point, dissolves in water, solids are poor conductors, ionic compounds in solutions can conduct electricity.

37. State 3 different properties of a metallic compound.

Usually solid at room temperature, high melting and boiling point, don't dissolve in water, good conductor of electricity and heat, shiny surface, can be hammered and pulled into wires.

38. Explain how metals are able to conduct heat and electricity.

Metals have a sea of delocalised electrons which carry electrical charge throughout the metal.

39. State the number of electrons in the valence shell of phosphorus and which element can be used to stabilize it.

Phosphorus has 5 electrons in its outer shell. It needs 3 more electrons to fill its shell. Boron, Aluminium, gallium or indium can be used to stabilize Phosphorus.

40. Explain the reactivity of Noble Gases.

Noble gases have a full outer shell and therefore do not react with anything. Low reactivity.

Term 1 Final Revision

Chapter 3 Final Questions

Multiple Choice

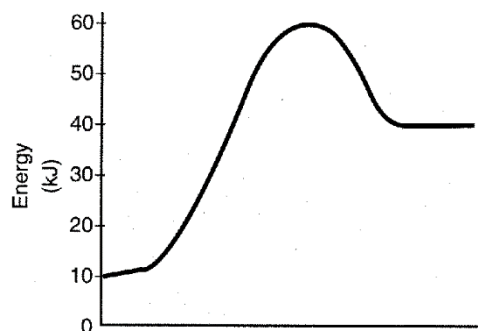
1	D
2	C
3	A
4	D
5	C
6	B
7	C
8	C
9	A
10	C
11	D
12	D
13	B
14	C
15	B
16	D
17	A
18	C
19	C
20	C

Short Answer questions

Reaction Progress

21. Given the diagram shown, determine the:

- a. Heat of the products: **40 KJ**
- b. Heat of the reactants: **10 KJ**
- c. Activation energy: **20 KJ**



22. Give examples of a chemical properties change.

Change in color, formation of bubbles, change in odor, and formation of precipitate.

23. Give examples of chemical Energy changes.

Warming or cooling, release of light.

24. State the number of atoms in C₆H₁₂O₆.

Carbon – 6, Hydrogen – 12, Oxygen 6.

25. Which side of a chemical equation do you find the reactants?

Left

26. How many products are formed during a synthesis reaction?

One

27. Oxygen is always a reactant in which type of reaction?

Combustion

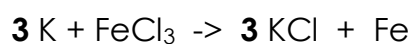
28. Balance the equations

29. And label the type of reaction on the line to the left.

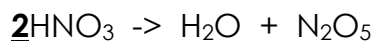
Reaction types include:

single displacement - double displacement – synthesis – decomposition - combustion.

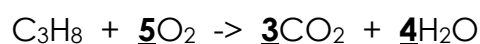
Single displacement



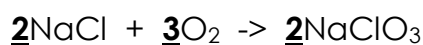
Decomposition



Combustion



Synthesis



30. In an exothermic reaction is energy absorbed or released?

Energy is released.

Long Answer questions

31. Explain what happens in terms of chemical bonds during a reaction.

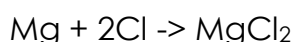
Bonds are broken in the reactants and atoms are rearranged. Bonds are reformed again within the new arrangement.

32. State what the law of conservation of mass states.

The total mass of reactants must equal the total mass of products.

33. Write a balanced equation for the following reaction:

Magnesium chloride is the product of a reaction between magnesium and chlorine.



34. Compare a synthesis and decomposition reaction.

Synthesis reactions start off with multiple reactants but have only one product.

Decomposition has one reactant and multiple products.

35. Compare Endothermic and exothermic reactions.

Endothermic reactions have higher energy products and therefore energy (heat) needs to go in the reaction to make the reaction proceed. Endothermic reactions feel cold.

Exothermic reactions have lower energy products and therefore release energy (heat) during the reaction. Exothermic reactions feel warm.

36. What is the activation energy of any reaction?

The minimum energy needed for the reaction to proceed.

37. Explain how a rate of reaction can be increased if the reactant(s) are solids?

By increasing the surface area by breaking the solid down into smaller pieces, increasing the concentration of reactants, increasing the temperature of the reaction, adding a catalyst.

38. State how adding a catalyst can increase the rate of a reaction?

Catalyst help to reduce the activation energy of a reaction therefore more particles can overcome the lower energy barrier in order for the reaction to proceed.

39. Compare enzymes and inhibitors.

Enzymes are biological catalysts which help to speed up reactions.

Inhibitors are substances which slow down or stop a chemical reaction.

40. Give an example of where inhibitors can be useful.

Used in food industry to inhibit or slow down food getting spoilt.

Term 1 Final Revision

Chapter 4 Final Questions

Multiple Choice

1	<i>B</i>
2	<i>D</i>
3	<i>C</i>
4	<i>C</i>
5	<i>C</i>
6	<i>A</i>
7	<i>C</i>
8	<i>B</i>
9	<i>B</i>
10	<i>D</i>
11	<i>C</i>
12	<i>B</i>
13	<i>D</i>
14	<i>C</i>
15	<i>C</i>
16	<i>C</i>
17	<i>D</i>
18	<i>D</i>
19	<i>C</i>
20	<i>A</i>

Short Answer questions

21. How can an object become electrically charged?

By gaining or giving or up electrons

22. Give an example of static electricity on a large scale in nature.

Lightning

23. In a series circuit, with two light bulbs, if one of the bulbs burns out, what will to the other bulb?

Go out

24. What three things do you need to produce an electrical circuit?

A battery (source), wire (conductor), bulb (load)

25. A wire wrapped around a nail in a closed circuit is an example of what?

Electromagnet

26. The force that two electrically charged objects apply to each other is...

An electric force

27. What will two negatively charged objects do in close vicinity?

Repel

28. What is used to turn sunlight energy into electrical energy?

Solar cells

29. Give an example for a gas that is used by Fuel cells.

Hydrogen

30. What happens to the brightness of the bulbs as more and more bulbs are added to a series circuit?

Become dimmer

Long Answer questions

31. What are electrical circuit in a house made from and why?

The circuits in a house are wired parallel because parallel circuits are more reliable. One broken bulb won't affect the other lights in the house. And more bulbs can be added without effecting the brightness of the other bulbs.

32. Why do we wrap electrical wires in plastic?

Plastic is a good insulator and keeps the electricity from harming anyone.

33. What would happen to a balloon after rubbing it on a cloth and taking it close to a wall?

A balloon with static electricity will stick to the wall because the balloon is negatively charged and is attracted to the positive charge near the surface of the wall.

34. Explain how la light bulb turns electrical energy into light energy?

Electrons moving in the filament collide with atoms in the filament. The atoms absorb the kinetic energy and turn it into light energy.

35. Why are Series circuits unreliable and inefficient?

One break in the circuit will cause the whole circuit to break. Adding more bulbs to a series circuit will reduce the light emitted from the other bulbs.

36. What does Voltage measure?

The amount of energy used to move one coulomb of electrons through a circuit.

37. What's the function of a safety cut off switch in an eclectically powered device?

To shut off the device if it becomes dangerous to handle.

38. Why does a compass point north?

The earth has molten iron and nickel inside its outer core creating a huge magnetic field. So the earth has a magnetic north and south pole.

39. How can magnetic material be turned into temporary magnet?

By placing a permanent magnet near it casing the magnetic materials magnetic domain to line up.

40. What is an electromagnet?

A temporary magnet made with current carrying wire coil wrapped around a magnetic core.