MARK SCHEME

GCSE

CHEMISTRY

AQA - TRIPLE SCIENCE

C10 - TEST 2

USING RESOURCES

Beginner

Mark schemes

1.

(a) reversible

1

(b) catalyst

1

(c) recycled

allow re-used

1

(d) (Q) S R P

*allow **1**mark if one letter in correct place.*

2

[5]

2.

(a) $N_2 + 3\ H_2 \rightarrow 2\ NH_3$

1

(b) catalyst

1

(c) as pressure increases percentage yield increases

1

(d) 32−23

both readings correct

1

= 9 (%)

1

[5]

3.

(a) increases

1

(b) the reaction is reversible

1

(c) A liquid

1

(d) recycled / reused (owtte)

accept returned to pump / start

1

[4]

4.

(a) tin

1

(b) 70 (%)

1

(c) $\frac{90}{100} \times 1100$

1

= 990 (g)

1

(d) mixture of metals

1

(e) (red brass) contains more copper

allow converse

1

(so) layers slide more easily
or
layers are less distorted

1

(f) 24

1

[8]

5. (a) (i) central block

1

(ii) conducts electricity

1

(b) any **two** from:
- visual pollution
- noise pollution
- dust pollution
- habitat destruction.

2

(c) (i) to concentrate the ore / copper carbonate
or
to remove / separate the rock

1

(ii) 12 (tonnes)

If answer is incorrect allow one mark for (127 + 132) − 247 or 259 - 247

2

(iii) any **one** from:
- so no reactant is wasted / left unreacted
- so they know how much product they will make
- need to record / compensate for the carbon dioxide produced

allow so they can work out their carbon footprint.

1

[8]

6. (a) (i) Solids

1

(ii) Chlorine

1

(iii) kill microbes / bacteria

allow to make the water safe to drink

ignore disinfect

ignore remove / get rid of microbes

1

(b) energy

allow heat

1

(c) improve dental health

allow reduce tooth decay

allow (local) government requirement

allow help teeth

1

[5]

7. (a) natural gas

allow correct answer shown in box if answer line blank

1

(b) (i) 450

allow correct answer shown in box if answer line blank

1

(ii) iron

allow correct answer shown in box if answer line blank

1

(iii) The catalyst lowers the activation energy.

1

(c) (the gases are) cooled

1

ammonia condenses

allow ammonia liquefies

1

nitrogen and hydrogen are recycled

*if no other mark awarded allow ammonia is separated for **1** mark*

1

[7]

8. (a) (i) Solids

1

(ii) Chlorine

1

(iii) improves dental health **or** reduces tooth decay

1

(b) put a sample of the filtered water in an evaporating basin **or** leave to evaporate

accept any description of evaporation (using a Bunsen or leaving on the windowsill)

1

there will be crystals of salt left

1

(c) sodium and / or chloride ions are bigger than water (molecules) **or** ions are charged **or** molecules are not charged

*do **not** accept sodium chloride molecules as ions is given in the question*

1

[6]

9. (a) alloy

1

(b) in mixture:

different sized / bigger atoms

1

so there are no layers / rows / lines (to slide)

accept converse

1

(c) any **two** from:

ignore references to bend and mould

- cost
- toxicity
- strength
- *appearance of brace*
- *unreactive **or** resistant to corrosion / saliva*

allow rusting as alternative to corrosion

2

(d) crosslinks

allow lines / bonds between the rows / chains

1

[6]

10. (a) fertilisers

1

(b) air

1

(c) speeds up the reaction

accept lowers the activation energy

ignore makes the reaction work

1

(d) reversible reaction

1

(e) (i) 10

1

(ii) water

accept H_2O / hydrogen oxide

1

[6]

11. (a) (i) 10

1

(ii) OH^-

1

(b) (i) air

1

(ii) particles move faster

1

particles collide more often

1

(iii) catalyst(s)

1

(c) liquid

1

[7]

12. (a) sodium loses (electron)

sharing / covalent / metallic = max 2

1

chlorine gains (electron)

1

1 **or** an (electron)

1

(b) (i) Have no overall electric charge

1

(ii) Should iodine be added to salt?

1

reason

any **one** from:

- cannot be done by experiment

  accept difficult to get / not enough evidence
- based on opinion / view

  allow must be done by survey
- ethical **or** economic issue.

1

(c) (i) nitric (acid)

1

(ii) an alkali

1

(iii) indicator

accept any named acid base indicator

1

(d) (i) Crystallisation

1

(ii) fertiliser

allow to help crops grow

1

(iii) any **one** from:

- pressure

  allow concentration
- temperature

  ignore heat
- catalyst.

1

[12]