

# C3 Quick Revision Questions

H = Higher tier only

SS = Separate science only

# Question 1

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- What is the law of conservation of mass?

# Answer 1

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- No atoms are lost or made during a chemical reaction.

# Question 2

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- What is the relative atomic mass?

# Answer 2

.... of 50

- The mass of an atom relative to  $1/12^{\text{th}}$  of a carbon-12 atom.

# Question 3

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- What is the formula mass of a molecule?

# Answer 3

.... of 50

- The sum of the atomic masses of all of the atoms in a molecule.

# Question 4

.... of 50

- Why might a reaction like decomposing a carbonate appear to violate the law of conservation of mass?



# Answer 4

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- The reaction gives off gas (carbon dioxide).

# Question 4

.... of 50

- Why do reactions stop?

# Answer 4

.... of 50

- The limiting reactant is used up.

# Question 5

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- What is uncertainty in a measurement?

# Answer 5

.... of 50

- The range of values within which the true value of a measurement falls.

# Question 6

.... of 50

- What is the difference between range and mean?

# Answer 6

.... of 50

- The range is the difference between the highest measurement and the lowest measurement.
- The mean is the sum of the measurements divided by the number of measurements

# Question 7

.... of 50

- What is precision?



# Answer 7

.... of 50

- **Precision** refers to the closeness of two or more measurements to each other

# Question 8

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- What are numbers of molecules measured in?

# Answer 8

.... of 50

- Moles.

# Question 9

.... of 50 **H**

- What is Avogadro's number?

# Answer 9

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- $6.02 \times 10^{23}$

# Question 10

.... of 50 **H**

- What is a mole?

# Answer 10

.... of 50

- A standard amount of substance. One mole of any substance contains the same number of particles, atoms, molecules or ions as any other one mole.

# Question 11

.... of 50 **H**

- How can you work out the number of moles?



# Answer 11

.... of 50

- Moles = mass/molar mass

# Question 12

.... of 50 **H**

- How is molar concentration calculated?

# Answer 12

.... of 50

- Concentration = moles/volume (dm<sup>3</sup>)

# Question 13

.... of 50 **H**

- How is mass based concentration calculated?

# Answer 13

.... of 50

- Concentration = mass (g) /volume (dm<sup>3</sup>)

# Question 14

.... of 50 **SS**

- What is the equation for percentage yield?

# Answer 14

.... of 50 **SS**

- %Yield = Actual Mass/Theoretical Mass

# Question 15

.... of 50 **SS**

- How is atom economy calculated?



# Answer 15

.... of 50

$$\text{Atom economy} = \frac{\text{Relative formula mass of desired product}}{\text{Sum of relative formula masses of all reactants}} \times 100$$

# Question 16

.... of 50 **SS** **H**

- What is the volume of one mole of gas at room temperature and pressure?

# Answer 16

.... of 50

- $24 \text{ dm}^3$

# Question 17

.... of 50

- What is the mass of three moles of KBr?

# Answer 17

.... of 50

- .1 mole of K is 39
- 1 mole of Br is 80
  
- 1 mole =  $39+80 = 119$
- 3 mole =  $119 \times 3 = 357$

# Question 18

.... of 50

- How many particles in two moles of helium?

# Answer 18

.... of 50

- .

$$2 \times 6.02 \times 10^{23} = 1.204 \times 10^{24}$$

# Question 19

.... of 50

- How do you calculate concentration in terms of moles?



# Answer 19

.... of 50

- .Concentration = no. moles  $\div$  volume

# Question 20

.... of 50 **SS**

- What can a titration be used to be measure?

# Answer 20

.... of 50

- .Can be used to calculate how concentrated a solution is

# Question 21

.... of 50 **SS**

- In a titration what piece of titration equipment delivers a fixed volume?

# Answer 21

.... of 50

- .A pipette delivers a fixed volume

# Question 22

.... of 50 **SS**

- What piece of equipment delivers a changing volume in a titration?

# Answer 22

.... of 50

- A burette delivers a variable volume.

# Question 23

.... of 50 **SS**

- Explain the process for a titration?



# Answer 23

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- Fill a burette with acid, record start volume of acid
- Pipette  $25\text{cm}^3$  of alkali into a conical flask
- Put a few drops of universal indicator into the flask
- Add the acid from the burette to the conical flask , swirl gently
- When the colour changes to neutral, record the volume of acid used to turn to neutral

# Question 24

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- How do you find the concentration of acid?

# Answer 24

.... of 50

Concentration of alkali x volume of alkali =  
concentration of acid x volume of acid

# Question 25

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- What is the equation to calculate percentage uncertainty for a set of measurements?

# Answer 25

.... of 50

- .percentage uncertainty =  
range of measurement x 100  
mean

# Question 26

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- What is the equation to calculate the range of a set of data?

# Answer 26

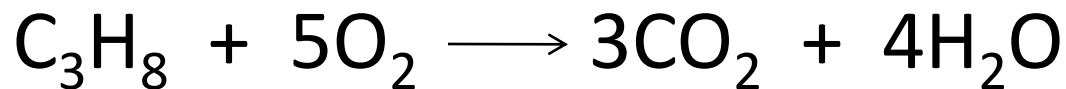
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- Range = highest measurement – lowest measurement

# Question 27

.... of 50 **H**

- How many moles of H<sub>2</sub>O will be made when 1 mole of C<sub>3</sub>H<sub>8</sub> react?





# Answer 27

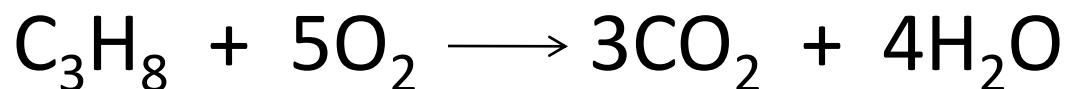
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# Question 28

.... of 50 **H**

- How many moles of H<sub>2</sub>O will be made when 3 moles of C<sub>3</sub>H<sub>8</sub> react?



# Answer 28

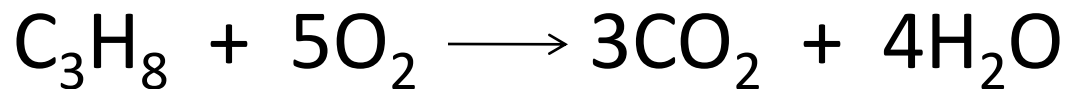
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# Question 29

.... of 50 **H**

- What mass of H<sub>2</sub>O will be made when 44g of C<sub>3</sub>H<sub>8</sub> react? (C=12, H=1, O=16)



# Answer 29

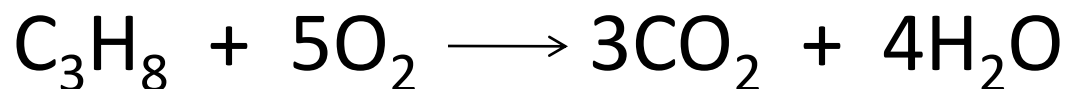
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- 72g

# Question 30

.... of 50 **H**

- What mass of H<sub>2</sub>O will be made when 220g of C<sub>3</sub>H<sub>8</sub> react? (C=12, H=1, O=16)



# Answer 30

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- 360g