

# Coaching Report

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<b>Group</b>	ntc.it ats.perugia.it	<b>Status</b>	Ended normally
<b>Assessment name</b>	General Chemistry 1 - EN V4	<b>Final Score</b>	15
<b>Time Used</b>	00:01:25	<b>Time limit (min)</b>	60
<b>Date taken</b>	13-09-2016 11:00:59		

**Questions - presented: 30, answered: 30**

**1** Which of the following hazard symbols indicates the presence of a strong oxidant ?



<b>Question type</b>	Hotspot
<b>Topic</b>	Life Span of Materials
<b>Difficulty</b>	2/3
<b>Score</b>	0.0
<b>Score max</b>	1
<b>Answer choosen</b>	not ok
<b>Answer</b>	0) 310,103,400,191

**2** Which of the following hazard symbols indicates the presence of a strong oxidant ?



<b>Question type</b>	Hotspot
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Topic	Life Span of Materials
Difficulty	2/3
Score	0.0
Score max	1
Answer choosen	not ok
	a thin, black, water paint.
Answer	0) 105,94,211,198

**3** The relative atomic masses of carbon, oxygen and aluminium are the following:

**C: 12.01**

**O: 16.00**

**Al: 26.98**

Select which one of the following statements is correct !



Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	2/3
Score	0.00
Score max	1
Answer choosen	There are more atoms in 12.01 g of carbon than in 16.00 g of oxygen
Answer	<p>0) There are the same number of atoms in 1 mol of each of these elements.</p> <p>1) There are the same number of atoms in 1 g of each of these elements.</p> <p>2) There are less atoms in 1 g of carbon than</p>

in 1 g of any of the other elements

3) There are more atoms in 1 g of aluminum than in 1 g of one of the other elements

4) There are more atoms in 12.01 g of carbon than in 16.00 g of oxygen

<b>4</b>	<b>What is the correct statement about chemical substances?</b>
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Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	2/3
Score	0.00
Score max	1
Answer choosen	Substances, which consist of identical molecules, are always elements.
Answer	<p>0) Pure substances consist of atoms; mixtures consist of molecules.</p> <p>1) Natural substances consist of atoms; synthetic substances consist of molecules.</p> <p>2) Substances which consist of identical molecules, can be elements or are compounds.</p> <p>3) Substances, which consist of identical molecules, are always elements.</p> <p>4) When chemical substances undergo a change in state, the composition of their molecules always changes.</p>

**5** Fe<sup>2+</sup> ion contains 26 electrons . What is the nuclear charge of Fe<sup>2+</sup> ?



Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	2/3
Score	0.00
Score max	1
Answer choosen	-24
Answer	0) -26 1) -24 2) 28 3) -28 4) 0

**6** An unknown quantity of a mixture of calcium carbonate (CaCO<sub>3</sub>) and magnesium carbonate (MgCO<sub>3</sub>) is heated and decomposed completely into calcium oxide (CaO), magnesium oxide (MgO) and carbon dioxide (CO<sub>2</sub>). Which one of the following quantities has to be known in order to calculate the amount of calcium carbonate in the initial mixture ?



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	2/3
Score	0.00
Score max	1
Answer choosen	The mass of CO <sub>2</sub> produced
Answer	0) The mass of CaO produced

- 1) The mass of CO<sub>2</sub> produced
- 2) The mass of MgO produced
- 3) The sum of the masses of CaO and MgO produced
- 4) Volume of CO<sub>2</sub> produced (at the standard temperature and pressure)

**7** Which one of the following represents a chemical change ?



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	2/3
Score	3.30
Score max	1
Answer choosen	tarnishing of silver
Answer	<p>0) tarnishing of silver</p> <p>1) condensation of steam</p> <p>2) dissolving sugar in water</p> <p>3) forming iron filings from iron</p> <p>4) distilling water</p>

**8** Copper reacts with concentrated sulfuric acid as represented by the following equation:  $\text{Cu} + 2\text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{SO}_2 + 2\text{H}_2\text{O}$  Which one of the following statements about the reaction is true ?



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	2/3

Score	0.00
Score max	1
Answer choosen	Sulfuric acid is a reducing agent.
Answer	<p>0) Copper is oxidised.</p> <p>1) Sulfuric acid is oxidised.</p> <p>2) Sulfuric acid is a reducing agent.</p> <p>3) Copper is reduced.</p> <p>4) Hydrogen is a reducing agent.</p>

**9** The chemical formula of copper(II) sulfate is...



Question type	Multiple Choice
Topic	Chemical Bonding
Difficulty	2/3
Score	0.00
Score max	1
Answer choosen	CuS
Answer	<p>0) CuS</p> <p>1) Cu<sub>2</sub>S</p> <p>2) Cu<sub>2</sub>SO<sub>4</sub></p> <p>3) CuSO<sub>4</sub></p> <p>4) Cu(SO<sub>4</sub>)<sub>2</sub></p>

**10** Which two of the following substances are water soluble ?



Question type	Multiple Response
Topic	Chemical Bonding
Difficulty	2/3

Score	0.66
Score max	1
Answer choosen	KI - ionic substance copper - metallic substance
Answer	0) I2 - molecular substance 1) CH3OH - polar molecular substance 2) C7H8 - non-polar molecular substance 3) KI - ionic substance 4) copper - metallic substance

**11** At school Paul carried out the following chemical reaction: potassium hydroxide (aq) + sulfuric acid (aq) potassium sulfate(aq) + water(l) This reaction can be classified as:



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	1/3
Score	0.00
Score max	1
Answer choosen	oxidation
Answer	0) neutralisation 1) oxidation 2) precipitation 3) reduction 4) condensation

**12** Tick the chemical you would use to prove that a rock contains calcium carbonate.



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	1/3
Score	0.00
Score max	1
Answer choosen	potassium oxalate solution
Answer	0) potassium oxalate solution 1) calcium hydroxide solution 2) hydrochloric acid 3) sodium hydroxide solution 4) sodium carbonate solution

**13** Select three items that are soluble in water



Question type	Multiple Response
Topic	Chemical Bonding
Difficulty	1/3
Score	0.33
Score max	1
Answer choosen	Sodium chloride Sugar Barium sulfate BaSO <sub>4</sub>
Answer	0) Sodium chloride 1) Ammonia NH <sub>3</sub> 2) Sugar 3) Gold



**14** Select the items that are soluble in water

Question type	Multiple Response
Topic	Chemical Bonding
Difficulty	1/3
Score	0.00
Score max	1
Answer choosen	Vinegar Butter
Answer	0) Snow 1) Vinegar 2) Sugar 3) Concrete 4) Butter

**15** Move the marker to the filtration funnel in the figure.

Question type	Hotspot
Topic	Life Span of Materials
Difficulty	1/3
Score	0.0
Score max	1
Answer choosen	not ok alizarin
Answer	0) 278,0,352,85

**16** The label on a bottle of mineral water purchased in a supermarket shows that

this water contains among others the following ions, in milligrams per litre.

From the list, select the alkali metal ions.



Question type	Multiple Response
Topic	Life Span of Materials
Difficulty	1/3
Score	3.30
Score max	1
Answer choosen	Potassium 3 Sodium 15
Answer	0) Calcium 114 1) Magnesium 16 2) Potassium 3 3) Chloride 28 4) Sodium 15

**17** Which one of the following elements forms an oxide which turns red litmus paper blue when added to water ?



Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	1/3
Score	3.30
Score max	1
Answer choosen	calcium
Answer	0) phosphorus

- 1) carbon
- 2) bromine
- 3) sulphur
- 4) calcium

**18** The label on a bottle of mineral water purchased in a supermarket shows that the product contains among others the following ions, in milligrams per litre. From the list, select one ion which might be harmful to your health in a concentrations 10 times higher than what is listed here ?



Question type	Multiple Choice
Topic	Life Span of Materials
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	Sulfate 15
Answer	0) Magnesium 16 1) Nitrate 9 2) Bicarbonate 400 3) Sulfate 15 4) Sodium 15

**19** Which two of the following metals are recycled in greatest amounts by mass in the world?



Question type	Multiple Response
Topic	Life Span of Materials
Difficulty	3/3

Score	0.00
Score max	1
Answer choosen	sodium
	gold
Answer	0) gold
	1) iron
	2) aluminium
	3) sodium
	4) tin

**20** Elementary oxygen is found in two forms: oxygen O<sub>2</sub> and ozone O<sub>3</sub>. Compare 10 g of O<sub>2</sub> and 10 g of O<sub>3</sub>. What is the only true statement in the following list ?



Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	The O <sub>3</sub> sample contains more atoms.
Answer	0) The two samples contain the same number of atoms.
	1) The O <sub>2</sub> sample contains more atoms.
	2) The O <sub>3</sub> sample contains more atoms.
	3) The O <sub>3</sub> sample contains more molecules.
	4) The two samples contain the same number of molecules.

**21** The number of atoms in three molecules of ammonia,  $\text{NH}_3$ , is:

Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	1
Answer	0) 12 1) 1 2) 3 3) 4 4) 10

**22** What is the correct chemical formula of potassium phosphate ?

Question type	Multiple Choice
Topic	Atoms and Elements
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	$\text{K}(\text{PO}_4)_3$
Answer	0) $\text{K}_3\text{PO}_4$ 1) $\text{KH}_2\text{PO}_4$ 2) $\text{KPO}_3$ 3) $\text{K}(\text{PO}_4)_3$ 4) $\text{K}_3(\text{PO}_3)_2$

**23** When marble pieces are added to hydrochloric acid, the following reaction takes place:



Which of the following actions would increase the rate of formation of carbon dioxide ?



Question type	Multiple Response
Topic	Types of Chemical Reactions
Difficulty	3/3
Score	0.66
Score max	1
Answer choosen	Adding water to the reaction mixture Reducing the size of the marble pieces
Answer	0) Reducing the size of the marble pieces 1) Heating the reaction mixture 2) Adding water to the reaction mixture 3) Using nitric acid instead of hydrochloric acid 4) Collecting the carbon dioxide in a gas cylinder.

**24** When a small piece of metallic sodium is added to liquid water, sodium hydroxide is formed. This reaction is...



Question type	Multiple Choice
Topic	Types of Chemical Reactions
Difficulty	3/3
Score	0.00

Score max	1
Answer choosen	exothermic because there is a transfer of energy from the surroundings to the system
Answer	<p>0) endothermic because there is a transfer of energy from the system to the surroundings</p> <p>1) exothermic because there is a transfer of energy from the system to the surroundings</p> <p>2) endothermic because there is a transfer of energy from the surroundings to the system</p> <p>3) exothermic because there is a transfer of energy from the surroundings to the system</p> <p>4) called reduction of sodium</p>

<b>25</b>	<b>Choose the two actions which make the pH value decrease .</b>
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Question type	Multiple Response
Topic	Types of Chemical Reactions
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	<p>evaporating water from a sodium hydroxide solution</p> <p>adding water to an acid solution</p>
Answer	<p>0) adding water to an acid solution</p> <p>1) adding sodium hydroxide solution to water</p> <p>2) adding hydrochloric acid to a sodium hydroxide solution</p>

- 3) evaporating water of a sulfuric acid solution
- 4) evaporating water from a sodium hydroxide solution

**26** The chemical symbol of oxide ion is:



Question type	Multiple Choice
Topic	Chemical Bonding
Difficulty	3/3
Score	0.00
Score max	1
Answer choosen	O-
Answer	0) O 1) O <sub>2</sub> 2) O- 3) O <sub>2</sub> - 4) O <sub>2</sub> +

**27** What type of chemical bonds exist in ammonium chloride NH<sub>4</sub>Cl?



Question type	Multiple Choice
Topic	Chemical Bonding
Difficulty	3/3
Score	3.30
Score max	1
Answer choosen	Covalent N-H bonds and ionic bond between chloride ion and ammonium nitrogen
Answer	0) Covalent N-H bonds and ionic bond



between chloride ion and ammonium nitrogen

1) Covalent bonds N-Cl, hydrogen bonds N- H

2) Hydrogen bonds H-H , Cl-H and N-H

3) Hydrogen bonds N-H and Cl-H

4) Ionic bonds only

**28** Fill in the blanks in the following text with one of the words

**gaseous, solid, oxides, produced.**

**Reaction of an element with oxygen leads to.**

**Metallicare, while non-metallic ones are often.**

**During combustion heat is.**



**Question type**

Fill in Blanks

**Topic**

Types of Chemical Reactions

**Difficulty**

1/3

**Score**

0.0

**Score max**

1

**Answer choosen**

not ok

**Answer**

0) oxides

1) oxides

2) solid

3) gaseous

4) produced

**29** Fill in the blank spaces in the following table:

**Element**

**Atomic Number**

**Atomic Mass**

**Number of protons**

**Number of eletrons**

**Number of neutrons**

**Symbol**

**Metal / Nonmetal**

**Bromie**

**35**

**79**



**Question type**

Fill in Blanks

**Topic**

Atoms and Elements

Difficulty	1/3
Score	0.0
Score max	1
Answer choosen	not ok
Answer	0) 35
	1) 35
	2) 44
	3) Br
	4) nonmetal

**30** Fill in the blank spaces in the following table:

**Element**

**Atomic Number**

**Atomic Mass**

**Number of protons**

**Number of eletrons**

**Number of neutrons**

**Symbol**

**Metal / Nonmetal**

**Neon**

**10**

20



Question type	Fill in Blanks
Topic	Atoms and Elements
Difficulty	1/3
Score	0.0
Score max	1
Answer choosen	not ok
Answer	0) 10 1) 10 2) 10 3) Ne 4) Nonmetal