**University of Djilali BOUNAAMA Khemis Miliana L3 Chemistry**

**F Faculty: Science and Technology Scientific English I**

**D Department: Material Science 2022/2023**

 **Last name: ……………….. Group: ………..**

**Firs First name: ……………….**

**Final Exam**

**Exercice 01. Choose the correct answer/answers to the following statements (07 pts)**

* **QCM.1. Beakers** **is used for**
1. precise dilutions
2. creating standard solutions
3. grinding chemicals to powder
4. holding many test tubes filled with chemicals
5. measuring no accurate volumes of chemicals
6. mixing chemicals

**QCM.2. Graduated cylinder is used for**

1. measuring accurate volumes of solution
2. holding small amounts of liquids for mixing
3. evaporating excess solvents to create a more concentrated solution
4. supports the crucible when being heated over an open flame

**QCM.3. “To Contain” cylinders are marked TC and are used to**

1. grind chemicals to powder
2. accurately measure how much of a liquid is in a container
3. measure the amount of liquid that needs to be poured from the cylinder into another container

**QCM.4. “To Deliver” cylinders are marked TD and are used to**

1. grind chemicals to powder
2. accurately measure how much of a liquid is in a container
3. measure the amount of liquid that needs to be poured from the cylinder into another container

**QCM.5. Pipets are typically used to measure**

1. larger volumes than graduated cylinders
2. smaller volumes than graduated cylinders
3. the masse of some powder based chemicals

**QCM.6. Glassware pipets which are made to contain and deliver one specific volume is named**

1. Volumetric pipets
2. Graduated pipets
3. Serological pipets

**QCM.7. Glassware pipets which are made to transfer fractions of their total volume is named**

1. Volumetric pipets
2. Graduated pipets
3. Serological pipets

**QCM.8. Stop-cocks are valves which can be found in**

1. Burets
2. Pipets
3. Graduated cylinders

**QCM.9. Titration procedure can be conducted by using**

1. Burets
2. Pipets
3. Graduated cylinders

**QCM.10. Volumetric flask is used for**

1. Precise dilutions
2. Creating standard solutions
3. Grinding chemicals to powder
4. Holding many test tubes filled with chemicals

**QCM.11. Bottle can be used**

1. To store chemicals
2. To collect samples
3. To conduct analyses
4. Holding many test tubes filled with chemicals

**QCM.12. Test tubes is used for**

1. Holding small amounts of liquids for mixing
2. Evaporating excess solvents to create a more concentrated solution
3. Supports the crucible when being heated over an open flame

**QCM.13. An Imhoff cone is used to conduct**

1. Biological Oxygen Demand
2. Chemical Oxygen Demand
3. Sludge volume analyses

**QCM.14. Petri dishes are used primarily for**

1. Bacterial analyses
2. Sludge volume analyses
3. Biological Oxygen Demand analysis

**Exercice 02 (7 pts): For each of the following questions indicate true or false , and then fully explain your answer.**

1. Burners use electricity to heat chemicals or solutions.

……………………………………………………………………………………….

1. HotPlates are used to contain the sample while it is being heated on a burner.

………………………………………………………………………………………..

1. Hot plates use natural gas to heat chemicals or solutions.

………………………………………………………………………………………...

1. Many hot plates are not capable of stirring a solution when magnetic mixing bar was not used.

…………………………………………………………………………………………..

1. The desiccator is filled with desiccant and is used to keep chemical reagents and samples humid.

…………………………………………………………………………………………

1. Biological Oxygen Demand incubators are used to incubate samples undergoing bacteriological analysis.

…………………………………………………………………………………………..

1. Vacuum pumps are typically used during the filtration of samples prior to analysis.

………………………………………………………………………………………......

1. A pH meter measures the pH of samples, which is a measure only the acidity of a sample.

………………………………………………………………………………………......

1. UV-visible spectrophotometer is an instrument used to measure how much a chemical substance absorbs light by measuring the intensity of light over the IR range.

………………………………………………………………………………………......

1. IR spectrophotometer uses chemical reagents to produce a color change in the sample.

………………………………………………………………………………………......

1. Specific colorimeter tests multiple parameters.

………………………………………………………………………………………......

1. High-performance liquid chromatography is a technique in analytical chemistry used only to separate each component in a mixture

………………………………………………………………………………………......

1. Gas chromatography is a common type of chromatography used in analytical chemistry for separating and analyzing non volatile compounds.

………………………………………………………………………………………......

1. A Buffer is a chemical or solution which can neutralize acids with very little or no change to the pH of the solution.

………………………………………………………………………………………......

**Exercice 03 (6 pts)** **List and briefly explain the main components of Gas chromatography (GC)**

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1. **What is the most commonly used carrier gas (mobile phase) used in gas chromatography?**

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**Note:**

* **QCM: Right answer (+1) / false answer (-1)**
* **The answer must be written on the examination paper with a pen. Papers copied from another paper will not be accepted for correction.**
* **Unclear answers are not corrected.**