

STUDENT'S NAME: \_\_\_\_\_

DATE: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

El siguiente es un trabajo práctico modelo para que el alumno/a resuelva en su hogar y lleve realizado el día del examen (debe llevar todo el trabajo impreso y resuelto, no las respuestas en una hoja).

El día del examen se recibirá este trabajo y se le entregará un examen similar al alumno/a (mismo formato pero con otro vocabulario) que deberá resolver ese mismo día.

De ser necesario, se pasará a una instancia oral donde se le realizarán preguntas sobre distintos temas (todos relacionados con el trabajo práctico o examen escrito).

La acreditación de la materia se dará con:

- Entrega y aprobación del trabajo práctico impreso en papel
- Resolución correcta del examen que realizará ese día

El examen oral se realizará sólo si el alumno/a necesita compensar algunos contenidos que no hayan quedado claros en el examen escrito y/o trabajo práctico.

A) Read the text "The chemistry of wine" and write T (true) or F (false). (ver PDF adjunto)

- 1- An average red wine will contain 86% water, and 12% ethyl alcohol. \_\_\_\_
- 2- Anthocyanins originate from the seeds of the grapes used to make the wine. \_\_\_\_
- 3- Red wine's colouration is dependent on the acidity. \_\_\_\_
- 4- Flavan-3-ols are found in the skin of grapes. \_\_\_\_
- 5- They contribute to the bitterness of red wine. \_\_\_\_
- 6- Flavonols have antioxidant properties but they're present in red wine in a too low concentration to be considered a good source. \_\_\_\_
- 7- The tannins in red wine don't contribute to its dryness. \_\_\_\_
- 8- Some tannins can also come from the barrels in which the wine is aged. \_\_\_\_

B) Turn these sentences from active to passive voice.

1- Anthocyanins produce polymeric pigments.

\_\_\_\_\_.

2- The variation of tannin concentration will affect the amount of dryness.

\_\_\_\_\_.

3- The acids in wine give the red colouration.

\_\_\_\_\_.

4- Scientists are investigating the antioxidants properties of wine.

\_\_\_\_\_.

5- They have found health benefits of resveratrol.

\_\_\_\_\_.

6- Researchers discovered over 1,000 different compounds in wine.

\_\_\_\_\_.

C) **VERB TENSES**: Choose the correct option.


- 1- Engineering as a profession INVOLVE / INVOLVES / IS INVOLVED different tasks.
- 2- Engineers MUST SOLVE / ARE SOLVE / MUST BE SOLVE specific problems.
- 3- Chemical processes HAS CREATED / HAVE CREATED / HAVE CREATE a wide variety of products.
- 4- Mauveine IS / WAS / WERE the first synthetic substance discovered by William Perkin.
- 5- Rutherford WASN' T DISCOVER / DID DISCOVERED / DIDN' T DISCOVER the electron.
- 6- Liquids TAKE / TAKES / TAKING the shape of the container that holds them.
- 7- Scientists HAVEN' T FOUND / HASN' T FOUND / HAVE BEEN FOUND a cure to Alzheimer yet.
- 8- I think electric cars WILL BE / WILL BEING / ARE GOING TO BE popular in the future.
- 9- The modern chemical industry BEGIN / BEGAN / WAS BEGAN towards the end of the 19<sup>th</sup> century.
- 10- The company IS GOING TO BE BOUGHT / IS GOING TO BUY / IS GOING TO BOUGHT a new robot to improve their production.
- 11- Huge quantities of chemicals USE / IS USED / ARE USED today.
- 12- The Haber process CREATE / CREATED / IS CREATED 450 million tons of nitrogen fertilizer per year.
- 13- She HAS JUST SANITIZED / JUST HAS SANITIZED / HAS SANITIZED JUST the kitchen board.
- 14- Many people COULD BE ARRESTED / COULD ARRESTED / COULD ARREST by the police if they don' t follow coronavirus quarantine orders.
- 15- He WAS CHECKED / DID CHECK / WAS CHECKING the water pressure when the accident HAPPEN / HAPPENED / WAS HAPPENING.
- 16- Crude oil CONVERTS / IS CONVERTED / CONVERT into petroleum by distillation.
- 17- The widespread use of petroleum HAVE CREATED / HAS CREATED / HAS BEEN CREATED serious environmental problems.
- 18- All their tankers SOLD / WERE SOLD / WAS SOLD by the company.
- 19- The various components present in crude oil ARE BEEN SEPARATED / ARE BEING SEPARATED / ARE BE SEPARATED into usable products.
- 20- At the moment he IS STUDIED / IS STUDYING / STUDIES to be a Petroleum Engineering.
- 21- Water chlorination KILL / KILLS / IS KILLED bacteria and microbes.

D) Read the text and do the activities.


# THE CHEMISTRY OF COW'S MILK

### MILK'S COMPOSITION

Milk is an emulsion of fat in water. It is also a colloidal suspension of proteins. Other compounds, including lactose and minerals, are fully dissolved in the solution.




WATER	87.5%
FAT	3.9%
PROTEINS	3.4%
LACTOSE & MINERALS	5.2%



### WHY IS MILK WHITE?

Milk contains hundreds of types of protein, of which casein is the main type. The milk proteins form micelles. These micelles scatter light, causing milk to appear white.

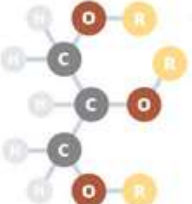


**CASEIN MICELLES**  
There are several models of casein micelle structure. This diagram shows the supramolecular structure.

**CASEIN PROTEINS**  
**CALCIUM PHOSPHATE CLUSTER**

### FATS IN MILK

Droplets of fat in milk have an average size of 3-4 micrometres. They consist mainly of triglycerides, and also contain fat-soluble vitamins.




**TRIGLYCERIDE**  
R = FATTY ACID MOLECULES

PALMITIC ACID	23.6-31.4%
OLEIC ACID	14.9-22.0%
STEARIC ACID	10.4-14.6%
MYRISTIC ACID	9.1-11.9%

### LACTOSE & MILK

Lactose is a sugar found in milk. People who are lactose intolerant are unable to digest it. Lactose can be fermented by microorganisms to form lactic acid, causing the milk to sour.



**LACTOSE** → **DIGESTION** → **GALACTOSE** + **GLUCOSE**  
**LACTOSE** → **FERMENTATION** → **LACTIC ACID**

E) Classify the underlined words from the text in the following chart. Circle or highlight the prefix/suffix in each word.

NOUN	ADJECTIVE	ADVERB	VERB

F) What do these pronouns in the text refer to? Choose the best option.

- |          |                |           |             |
|----------|----------------|-----------|-------------|
| 1- it    | a- emulsion    | b- milk   | c- water    |
| 2- which | a- milk        | b- casein | c- protein  |
| 3- they  | a- micrometers | b- fats   | c- droplets |
| 4- it    | a- lactose     | b- milk   | c- sugar    |

G) **RELATIVE CLAUSES**: Rewrite each pair of sentences as one sentence. Do not change the meaning. Use the relative pronoun given.

1- The milk proteins form micelles. They give milk its white appearance. **WHICH**

\_\_\_\_\_

\_\_\_\_\_.

2- F. Bartolletti discovered lactose in milk in 1619. He identified it as a sugar in 1780. **WHO**

\_\_\_\_\_

\_\_\_\_\_.

3- Lactose can be fermented. Its microorganisms form lactic acid. **WHOSE**

\_\_\_\_\_

\_\_\_\_\_.

H) **PRONOUNS**: Choose the best option.

1- Where is my pencil? I can't find IT / ITS / ONE.

2- I lent you some books. Can you give THEY / THEM / THEIR back to me, please?

3- My brother's name is Samuel but everybody calls HE / HIS / HIM Sam.

4- Julia and I / ME / MY have been married for 10 years.

5- Susan likes to walk by HER / HERS / HERSELF.

6- My father found a new job last month. HE / HIS / HIM new boss is very kind.

7- We live in this house. It's WE / OUR / OURS.

8- Are these YOU / YOUR / YOURS dogs?