

MINISTRY OF EDUCATION

SECONDARY ENGAGEMENT PROGRAMME

GRADE 11

CHEMISTRY

WEEK 7

LESSON 1 - WORKSHEET

Circle the correct response for items 1-5.

1. Which of the following is a product when ethanol burns in oxygen?
 - a) Carbon Monoxide
 - b) Steam
 - c) Ethene
 - d) Ethane
2. Ethanol reacts with sodium to produce
 - a) Sodium Ethanoate
 - b) Sodium Ethoxide
 - c) Ethanoic Acid
 - d) Ethane
3. Ethanol is dehydrated to
 - a) Ethanoic acid
 - b) Ethane
 - c) Ethene
 - d) Sodium Ethanoate
4. Ethanol is oxidized to _____ when heated with acidified potassium manganate (VII).
 - a) Ethanoic acid
 - b) Ethane
 - c) Ethene
 - d) Sodium Ethanoate
5. Which of the following is fermented to produce ethanol?
 - a) Carbohydrates
 - b) Proteins
 - c) Fats
 - d) Oils

6. Write the equation which describes the fermentation of carbohydrates into ethanol.

7. What are the conditions necessary to dehydrate ethanol?

8. How are the acidified potassium dichromate (VI) crystals is are used in the breathalyzer test to determine the alcohol content of a driver's breath.

9. Fermentation of Carbohydrates is used to produce _____ and _____.

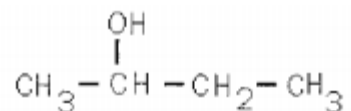
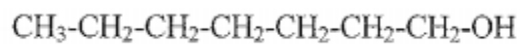
10. Why shouldn't air come into contact with wine during fermentation?

11. Draw the structural formula for the molecules shown below.

1. 2-pentanol

2. 1-butanol

12. Name the compounds shown below

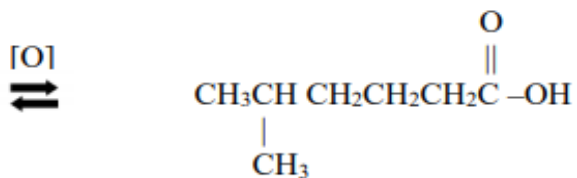


13. Draw the condensed structure for the organic molecule that is produced when 2-butanol is oxidized.

14. Draw the condensed structure of the major and minor products for the dehydration reaction of 2-pentanol.

15.

) Draw the **alcohol** that is *oxidized* when excess MnO_4^- is used as an oxidizing agent.



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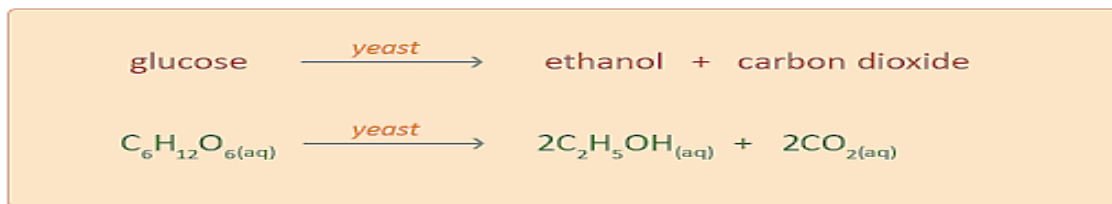
CHEMISTRY

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 - Ethanoic acid**
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 - Ethene
 - Sodium Ethanoate
- Which of the following is fermented to produce ethanol?
 - Carbohydrates**
 - Proteins
 - Fats
 - Oils

6. Write the equation which describes the fermentation of carbohydrates into ethanol.



7. What are the conditions necessary to dehydrate ethanol?

Heating ethanol to a temperature of about 170°C, with excess, concentrated sulphuric acid (which acts as a catalyst), or passing ethanol vapour over heated aluminum oxide (which acts as a catalyst).

8. How are the acidified potassium dichromate (VI) crystals are used in the breathalyzer test to determine the alcohol content of a driver's breath.

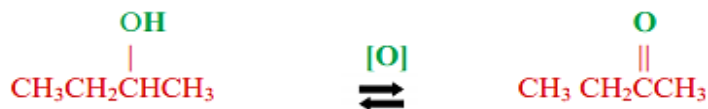
When the orange acidified potassium dichromate (VI) crystals are in the presence of ethanol vapour (from the breath of a driver who has consumed alcohol), the orange Cr_2O_7^- ion is reduced to the green chromium (III) ion (Cr^{3+}). This turns the crystals green.

9. Fermentation of Carbohydrates is used to produce **Rum** and **Wine**.

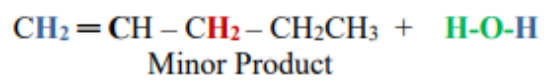
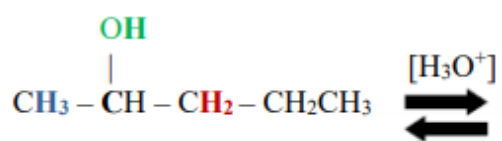
10. Why shouldn't air come into contact with wine during fermentation?

Air should not come into contact with the wine, because aerobic bacteria oxidise the ethanol to ethanoic acid (vinegar), causing the wine to become sour.

13.



14. Draw the condensed structure of the products for the dehydration of 2-pentanol



15.

