Fermentation Notesheet C. Kohn, Waterford WI

Name: Hour Date:

Date Assignment is due: Why late? Score: + ✓ -
 Day of Week Date If your project was late, describe why  **Directions**: Use the accompanying PowerPoint (*available online*) to complete this sheet. This sheet will be due upon the completion of the PowerPoint in class. These assignments are graded on a +/✓/- scale.

1. The cells of are powered by a molecule called
2. After ATP powers a cellular process, it becomes
3. What must happen to ADP in order for it to be useful again?
4. How is ATP like a rechargeable battery? List three ways:
5. What is a eukaryotic organism?
6. Where do most eukaryotic organisms produce ATP?
7. The mitochondria is the of the cell and produces most of the cell’s
8. ATP is produced by a found in the mitochondria called
9. ATP Synthase is sort of like a . As it turns, it combines & into
10. What turns the ATP Synthase ‘wheel’?
11. Where does this hydrogen come from?
12. Oxygen is necessary to enable

behind the so that
13. What would happen if the supply of oxygen to a cell was interrupted?
14. What will happen if a cell runs out of ATP?
15. What are prokaryotic bacteria?
16. True or false: yeast are prokaryotic bacteria. Explain:
17. When oxygen is available, yeast will break down carbohydrates into
18. What is cellular respiration?
19. When oxygen is not available, yeast will produce via a process called
20. True or false: fermentation does the same thing to the same extent as respiration, but without oxygen, so it is a more favorable process for yeast.

\_\_\_\_\_\_\_\_ Explain:
21. If yeast results in far less ATP production, why do yeast use it?
22. In fermentation, are converted into
23. What happens in glycolysis?
24. What is a pyruvate?
25. True or false: the production of two pyruvate molecules from sugar requires the use of ATP.
26. Pyruvate can be used to add to in a process called
27. How much ATP is produced in substrate level phosphorylation? How much net ATP is produced?
28. After producing 4 ATP, the yeast cell must reform . What is NAD+?
29. When NAD+ acquires a hydrogen molecule, it becomes .
30. Why must NADH be converted back into NAD+?
31. What would happen if NADH was not converted back into NAD+?
32. In order to convert NADH back into NAD+, the yeast cell must convert the pyruvate molecules into

 and then
33. Why does the yeast cell convert pyruvate into acetaldehyde and then ethanol? Why not stop at pyruvate?
34. Summarize the five steps of fermentation below:

1

2

3

4

5
35. What are seven examples of fermented products used by society?
36. What are five benefits of fermented foods?
37. True or false: the molecular structure of fuel ethanol is the same as a consumable ethanol.
38. How does the fermentation of sugar differ from that of corn? How does cellulose fermentation differ?
39. Summarize the steps of dry milling below:

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2

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40. How does wet milling differ from this?
41. Alcohol is treated as a by the human body. Many of the effects associated with inebriation

are actually the result of

or
42. Alcohol is also a and can form both
43. Alcohol abuse is defined as to the point where it impacts

 or to the point that it is
44. When alcohol is consumed, is immediately absorbed into the bloodstream from the mouth and esophagus.
45. How does muscle differ from fat in how it absorbs alcohol?
46. What removes alcohol from the body? How fast can this organ metabolize alcohol?
47. In the space below, summarize how ADH and ALDH are used by the liver to break down alcohol.
48. True or false: as alcohol is metabolized by the body, it is broken down into safer and more gentler molecules.

 Explain:
49. What happens to alcohol after it has been turned into acetaldehyde and then acetate?
50. Alcohol is a depressant. What does this mean?
51. Why is an individual more likely to take risks during episodes of binge drinking? Explain by addressing the effects of alcohol on self-confidence and on rational judgment.
52. What is binge drinking?
53. Consumption of alcohol by the average woman will likely result in more impairment than consumption of the same amount of alcohol by a man. Why? Explain two reasons for this:

1

2
54. What percent of American women have experienced sexual assault?

What percent of the cases of sexual assault of women involved alcohol?
55. Impairment of the parietal lobe by alcohol has what effect on the body?
56. Impairment of the primary motor cortex by alcohol has what effect on the body?
57. Impairment of the premotor cortex by alcohol has what effect on the body?
58. Impairment of the cerebellum by alcohol has what effect on the body?
59. Impairment of the hippocampus by alcohol has what effect on the body?
60. Impairment of the amygdala by alcohol has what effect on the body?
61. How does alcohol affect the endolymph in the semicircular canals?

What effect does this have on the body?
62. Alcohol is a diuretic, meaning
63. What are aquaporin proteins?
64. What is vasopressin?
65. How does alcohol affect aquaporin proteins and vasopressin?
66. Why is excess alcohol consumption associated with excessive urination? List three reasons:
67. True or false: alcohol enables people to sleep better by inhibiting glutamine, the body’s natural stimulant.

Explain:
68. Briefly explain how alcohol impacts each of the following:

Liver Disease:

Digestive Problems:

Heart Disease:

Sexual Impairment:

Birth Defects:

Bone Loss:

Cancer:
69. Addiction is also known as . Summarize the two factors that influence addiction:

Psychological dependence:

Physical dependence:
70. What is withdrawal?
71. Regular of alcohol will often result in a on the

consumption of alcohol in order to feel and not experience
72. What is alcohol tolerance?
73. As more alcohol is consumed over time, the body will produce more to degrade alcohol, requiring more alcohol to feel the same effect.
74. True or false: alcohol has a similar rate of dependency as cocaine.

Unit Wrap-up C. Kohn, Agricultural Sciences - Waterford WI

This page is designed to help raise your grade while enabling you to develop skills you will need for after high
school. You will need to complete every question and blank in order to receive full credit for your notes. Note: if you cannot come up with a strategy to remember a difficult concept on your own, see your instructor for help.

1. What is a topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
2. What is a 2nd topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
3. What is a 3rd topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
4. Circle the most appropriate response. You will only be graded on whether or not you completed this section.

Circle one: *I used my notes outside of class to prepare for the quiz.* Definitely – Yes – Sort of - No

Circle one: *I took extra notes in the margins for very difficult concepts.* Definitely – Yes – Sort of - No

Circle one: *I created a personal strategy for at least three difficult items.* Definitely – Yes – Sort of - No

Circle one: *I was very involved and actively studying during the quiz review.* Definitely – Yes – Sort of - No

Circle one: *I think I will be satisfied with the quiz grade I received this week.* Definitely – Yes – Sort of - No

Circle one: *I might need to meet with the instructor outside of class.* Definitely – Yes – Sort of - No