

**BC Unit 2 Review****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. Alcohols must contain a(n)?  
a. carbonyl group  
b. oxygen group  
c. hydroxyl group  
d. carboxyl group
- \_\_\_\_\_ 2. Aldehydes must contain a(n)?  
a. carbonyl group  
b. oxygen group  
c. hydroxyl group  
d. carboxyl group
- \_\_\_\_\_ 3. Carboxylic acids must contain a(n)?  
a. carbonyl group  
b. oxygen group  
c. hydroxyl group  
d. carboxyl group
- \_\_\_\_\_ 4. Which of the following is most soluble in water?  
a. an alcohol  
b. a diol  
c. a triol  
d. none, they are not soluble in water
- \_\_\_\_\_ 5. Which of the following alcohols has the lowest boiling point?  
a. 1-pentanol  
b. 1,5-pentanediol  
c. 1,3,5-pentanetriol  
d. none, they have the same boiling point
- \_\_\_\_\_ 6. Of the compounds listed below which would have the highest boiling point?  
a. alkane  
b. alcohol  
c. ketone  
d. aldehyde
- \_\_\_\_\_ 7. In which class of compounds can not be oxidized any further?  
a. alcohols  
b. aldehydes  
c. ketones  
d. none of these
- \_\_\_\_\_ 8. If experimental conditions are carefully controlled, ketones can be obtained by the oxidation of which of the following?  
a. 1° alcohols  
b. 2° alcohols  
c. 3° alcohols  
d. none of these
- \_\_\_\_\_ 9. Which of the following describe the properties of ethers?  
a. are very reactive  
b. are inert  
c. good solvents  
d. b and c
- \_\_\_\_\_ 10. Which structural feature is common to aldehydes and ketones  
a. an oxygen atom bonded to both a carbon atom and a hydrogen atom  
b. an oxygen atom bonded to two carbon atoms  
c. an oxygen atom double bonded to a carbon atom  
d. two oxygen atoms bonded to the same carbon atom



Name: \_\_\_\_\_

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- \_\_\_\_\_ 23. What is the process used when a carboxylic acid is changed into a primary alcohol?
- a. oxidation
  - b. reduction
  - c. hydrolysis
  - d. dehydration
- \_\_\_\_\_ 24. Which of the following is a dietary source of carbohydrates?
- a. plant material
  - b. hamburger
  - c. milk
  - d. all of the above
- \_\_\_\_\_ 25. Which of the following is true of the hydrolysis of carbohydrates?
- a. carbohydrates cannot be hydrolyzed
  - b. hydrolysis of carbohydrates can only yield polyhydroxyaldehydes
  - c. hydrolysis of carbohydrates can only yield polyhydroxyketones
  - d. hydrolysis of carbohydrates can yield polyhydroxyaldehydes and/or polyhydroxyketones
- \_\_\_\_\_ 26. The reaction of monosaccharides to form a disaccharide is an example of which of the following reactions?
- a. condensation
  - b. hydrolysis
  - c. reduction
  - d. oxidation
- \_\_\_\_\_ 27. Which of the following is a common pentose?
- a. ribose
  - b. glucose
  - c. fructose
  - d. maltose
- \_\_\_\_\_ 28. An  $\alpha(1 \rightarrow 4)$  glycosidic bond is found in which of the following?
- a. galactose
  - b. maltose
  - c. glucose
  - d. all of these
- \_\_\_\_\_ 29. Structural polysaccharides include?
- a. cellulose and chitin
  - b. cellulose and glycogen
  - c. cellulose and maltose
  - d. cellulose and heparin
- \_\_\_\_\_ 30. A glycosidic bond (linkage) is chemically?
- a. an ester
  - b. an aldehyde
  - c. an alcohol
  - d. a ketone

10. Describe the difference between 1°, 2°, and 3° alcohols. Which can be used to create an aldehyde, which can be used to create a ketone?

11. List two important physical properties of alcohols.

12. Describe how the sweetness changes between mono and disaccharides to polysaccharides.

13. List the monosaccharides that bond together to form the following disaccharides.

a. sucrose:

b. maltose:

c. lactose:

14. Using Benedict's reagent is one of the most common testing methods for glucose. Describe how the reaction works and what does a positive result look like.

15. Describe what happens in the body when the blood glucose level rises to 200 mg/dL.

Complete the following illustrations.

16. pentan-3-ol

17. cyclohexanone

18. 3-methyl butanal

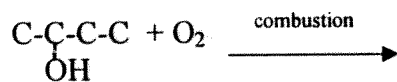
19. glucose (aliphatic)

Identify and complete the following reactions.

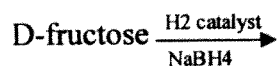
20. type: \_\_\_\_\_



21. type: \_\_\_\_\_



22. type: \_\_\_\_\_



23. Illustrate the formation of a cyclic hemiacetal from an aliphatic form of glucose.

24. Where is the enzyme amylase formed and what does it do?

25. Describe the reaction process by which monosaccharides are linked together to form a polysaccharide.