

## Carbohydrates Multiple Choice Questions

Instructions: Read each question carefully, for each question , there is ONE answer, circle the appropriate answer for each question, work as quickly and carefully as possible. This exam should be done in thirty(30) minutes.

1. Which of these are examples of epimers?
  - (a) Glucose & Maltose
  - (b) Lactose & Galactose
  - (c) Glucose & Galactose
  - (d) Lactose & mannose
2. What are the different ways to represent a carbohydrate molecule?
  - (a) Pyranose ring, furanose ring, straight chain
  - (b) Straight chain, Haworth Projection, chair/boat configuration.
  - (c) Pyranose ring, straight chain, chair/boat configuration
  - (d) Furanose ring, straight chain, Haworth projection
3. Which representation of a carbohydrate can a hemiketal or hemiacetal be observed?

- (a) Pyranose ring
- (b) Haworth projection
- (c) Straight chain
- (d) Chair/boat configuration

4. Which of the carbohydrate molecules are non-reducing agents?

- (a) Glucose
- (b) Maltose
- (c) Fructose
- (d) Sucrose

5. Which of these are correct combinations of monosaccharides to form disaccharides?

- (i) Glucose + Glucose = Maltose
- (ii) Glucose + fructose = Lactose
- (iii) Glucose + fructose = Sucrose
- (iv) Glucose + galactose = Lactose

- (a) (i),(ii),(iii) only
- (b) (ii) only
- (c) (i),(iii),(iv) only
- (d) All of the above

6. What test is used for reducing sugars:

- (a) Biuret test
- (b) Ninhydrine test
- (c) Glucose Oxidase system
- (d) Benedict's test

7. Give the uses of polysaccharides Amylose, Cellulose and Glycogen in the right order:

- (a) Storage , structure, Storage
- (b) Structure , storage, structure
- (c) Storage , storage, structure
- (d) Structure,storage,storage

8. A patient at the hospital has a high blood concentration, which hormones is being released in the body of that patient?

- (a) Anti-diuretic hormone & Glucagon
- (b) Insuline & Anti-diuretic Hormone
- (c) Glycogen & Insuline
- (d) Glucagon & Glycogen

9. What is the main source of energy for the brain?

- (a) Lipids
- (b) Starch
- (c) Glucagon
- (d) Glucose

10. A person with a low blood concentration for a long time experiences?

- (a) A healthy wellbeing
- (b) A better attitude
- (c) Coma or death situation
- (d) A better functioning brain

11. What are the functions of carbohydrates?

- (a) For repair of body tissues
- (b) An energy sparer
- (c) A source of energy, plays key role in structure and storage
- (d) To speed up chemical reaction

12. D & L Designation can be used to?
- (a) Name glucose molecules
  - (b) Observe chiral centers
  - (c) Transform glucose molecules into either pyranose or furanose rings
  - (d) To prepare a glucose molecule for bonding to form disaccharide
13. Choose the correct order of sugars from carbons three to six:
- (a) hexose, pentose, tetrose, triose
  - (b) tetrose, hexose, triose, pentose
  - (c) triose, pentose, tetrose, hexose
  - (d) triose, tetrose, pentose, hexose
14. A straight chain hexose sugar forms which type of ring?
- (a) pyranose ring
  - (b) ketose ring
  - (c) benzene ring
  - (d) furanose ring
15. What is the difference between cellobiose and cellulose?
- (a) Cellobiose is a straight chain but cellulose is a ring

- (b) Cellulose is an alpha glucose but cellobiose is a beta glucose
- (c) Cellulose is a straight chain of Beta glucose however cellobiose is two Beta glucose
- (d) Cellulose is a starch molecule, cellobiose is a glycogen molecule

16. What are the two structures making up starch?

- (a) Amylose and cellulose
- (b) Amylose and amylopectin
- (c) Amylopectin and cellobiose
- (d) Cellobiose and cellulose

17. What hormone deficiency causes diabetes?

- (a) Vitamin C
- (b) Glucagon
- (c) Glucose
- (d) Insulin

18. Is Fructose a non-reducing sugar and why?

- (a) No because it becomes reduced to a brick red colour with benedict's solution
- (b) Yes because it becomes reduced to a brick red colour with benedict's solution.
- (c) Yes because it isn't reduced in benedict's solution, colour remains blue.
- (d) No because it isn't reduced in benedict's solution, colour remains blue.

19. What is the name of the bond formed between glucose and galactose monosaccharides to produce the disaccharide lactose?

- (a) Alpha 1,2 glycosidic bond
- (b) Beta 1,4 glycosidic bond
- (c) Alpha 1,4 glycosidic bond
- (d) Beta 1,2glycosidic bond

20. What is meant by lactose intolerance (Hypolactasia)?

- (a) This is where more lactose can be consumed than can be digested, where the lactase enzyme to break down the lactose is not sufficient causing accumulation in stomach, one will get bloating effect, abdominal discomfort, diarrhea. Bacteria respire in that to get energy leaving products of acid and gas giving unpleasant effects.
- (b) Lactose intolerance is where a someone can't tolerate milk in their stomach , where due to a number of foods eaten at the same time that lactose may have a negative impact on that person through the milk and cause vomiting
- (c) This is where children grow to naturally prefer juice than milk due to the different processes in which the lactose of the milk undergoes which by the end of the process of producing milk; the enzymes are killed causing an allergic reaction, where children get sick.
- (d) This is where there is a buildup of lactose in the stomach which mixes with mucus to cause an oxidation reaction where the enzyme lactase dies due to the reaction generating heat causing that individual to obtain a fever.

This is the end of the Exam!!

Good Luck!! Buene suerte!!