

Chemistry 300A Quiz 2 Spring 2020 KEY

Answer the following questions on the Scantron form. For Questions 1-23, indicated whether that statement given is True or False; for Questions 24-30, select the best answer from the choices given.

Questions 1-23 are True/False (A = TRUE; B = FALSE)

1. Linoleic (omega-6) and linolenic (omega-3) are fatty acids that cannot be synthesized by humans. **T**
2. On a per carbon basis, fat contains more energy than sugar. **T**
3. Stearic acid is a saturated fatty acid obtained from animal sources. **T**
4. BHT and vitamin E are both phenols that can act as anti-oxidants to help protect unsaturated fats. **T**
5. Corn, wheat and rice are all poor sources of the amino acid alanine. **F**
6. Acrylamide is a carcinogen formed in some baked and fried foods by the breakdown of asparagine. **T**
7. α -(+)-D-glucose and β -(+)-D-glucose are different sugars but they can interconvert in water solution. **T**
8. Bees wax is a long chain alcohol. **F**
9. Although cellulose contains glucose subunits in a polymeric structure, it cannot be digested by humans because it contains β -links and we lack the enzyme necessary to break these down. **T**
10. Vitamin D controls Ca^{2+} ion uptake but an excess can cause skin to peel. **F**
11. Vitamin K is often prescribed to older people to lessen the chance of stroke. **F**
12. The artificial sweeteners Acesulfame-K and saccharin both feature S-containing rings. **T**
13. Sucralose is an artificial sweetener made by combining sucrose and cellulose. **F**
14. Sodium hydroxide is commonly added to jams and jellies as a preservative. **F**
15. Monosodium glutamate (MSG) is added to foods primarily as a flavour enhancer. **T**
16. Maltol is a common flavour enhancer derived from the shells of scale insects farmed in Australia. **F**
17. Salts of several carboxylic acids (e.g. benzoic acid) act as preservatives by starving microorganisms of nutrients. **T**
18. ^{60}Co (gamma ray) irradiation of fruit kills microorganisms and slows ripening. **T**
19. Natural fruity flavours are mainly due to long chain carboxylic acids. **F**
20. Modern food colourants are safer than their predecessors because they incorporate sulphonic acids. **T**
21. 2,4-D is a cheap, effective herbicide that degrades rapidly in soil and has low toxicity to animals. **T**
22. The rapid increase in crop yields in the past 50-60 years is largely due to the introduction of soil-based insecticides. **T**
23. 2,4,5-T (Agent Orange) is highly toxic because of the presence of dioxin as an impurity. **T**

Questions 24-30 are multiple choice; select the one best answer per question.

24. Which of the following statements about **trans fats** and/or **trans-fatty acids** is **NOT** true? **(a)**
(a) **Trans fatty acids occur in nature**
(b) Trans fats have higher melting points than their cis isomers
(c) Trans fats increase LDL a few %
(d) Trans fats need to be stabilized against oxidation
25. Which of the following is **NOT** a feature or function usually ascribed to **vitamin A**? **(b)**
(a) Necessary for good vision
(b) **Water soluble**
(c) Obtained from fish liver oil
(d) Critical to skin health
(e) Teratogenic in excess
26. Which **B vitamin** is commonly given to pregnant women to decrease the risk of spina bifida? **(d)**
(a) B1 (thiamine) (b) B2 (riboflavin) (c) B3 (niacine) **(d) B9 (folic acid)** (e) B12
27. Which of the following statements about the use of **sodium nitrite** in food is/are true? **(a)**
(a) **Inhibits botulinus bacteria**
(b) Allows meat to turn gray slowly
(c) Penetrates below the surface of the meat
(d) None of the above statements are true
(e) All of the above statements are true
28. Which of the following statements about **daminozide (ALAR)** is/are **TRUE**? **(e)**
(a) ALAR was sprayed on fruit to keep it from falling off the tree too soon and bruising
(b) ALAR was banned due to strong lobby pressure on the FDA
(c) ALAR is a carcinogen
(d) apple juice from apples sprayed with ALAR contained detectable levels of daminozide
(e) **All of the above statements are true**
29. Which of the following statements about **glyphosate** is/are **TRUE**? **(e)**
(a) Deactivates rapidly in soil
(b) Stops biosynthesis of aromatic amino acids
(c) Has low mammalian toxicity
(d) Is a broad spectrum herbicide (kills almost all types of vegetation)
(e) **All of the above statements are true**
30. Which of the following statements about **atrazine** is/are **TRUE**? **(c)**
(a) Deactivates rapidly in soil
(b) Stops biosynthesis of aromatic amino acids
(c) **Banned by the EU because it causes feminization of frogs**
(d) Has been used by terrorists as a potent nerve agent
(e) None of the above statements are true

END