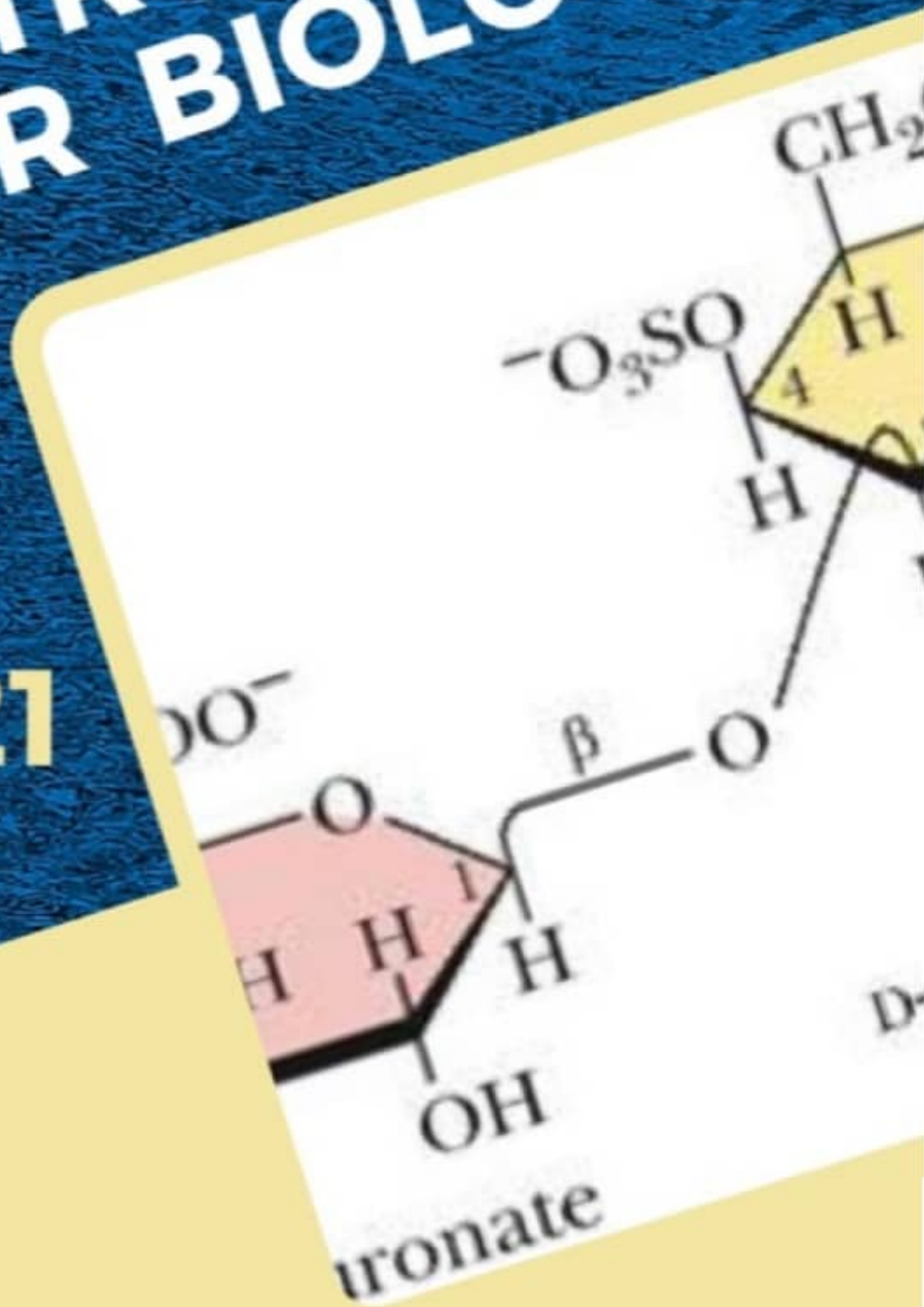




دفعة القدس

# PAST PAPERS OF BIOCHEMISTRY & MOLECULAR BIOLOGY

## MIDTERM 2021



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## { Biochemistry – midterm }

**1. What is the mutual property of amylose and cellulose?**

- A.  $\alpha$ 1-4 glycosidic linkage
- B. digestible by humans
- C. consist of reduced glucose residues
- D. They are not branched
- E. None of the above

**Answer: D**

**2. The lipid which doesn't have a phosphate group in its structure is:**

- A. Plasmalogens
- B. Ceramide
- C. Glycerophospholipids
- D. Lecithin
- E. Phosphatidylserine

**Answer: B**

**3. The lipid which has 3 conjugated double bonds in its structure is:**

- A. Eicosanoids
- B. Thromboxanes
- C. Prostacyclins
- D. Leukotriene

**Answer: D**

**4. The bond between the glycerol and the fatty acids is:**

- A. Glycosidic bond
- B. Ether bond
- C. Ester bond
- D. Hydrogen bond

**Answer: C**

**5. The acid with the highest melting point is:**

- |                  |                     |                 |
|------------------|---------------------|-----------------|
| A. palmitic acid | B. Arachidonic acid | C. Stearic acid |
| D. Oleic acid    | E. Linoleic acid    |                 |

**Answer: C**



6. Which of the following acids will be 70% unprotonated at pH=4.9

- A. X acid  $pK_a = 5.1$
- B. Y acid  $pK_a = 5.9$
- C. Z acid  $pK_a = 5.5$
- D. V acid  $pK_a = 4.4$
- E. N acid  $pK_a = 4.8$

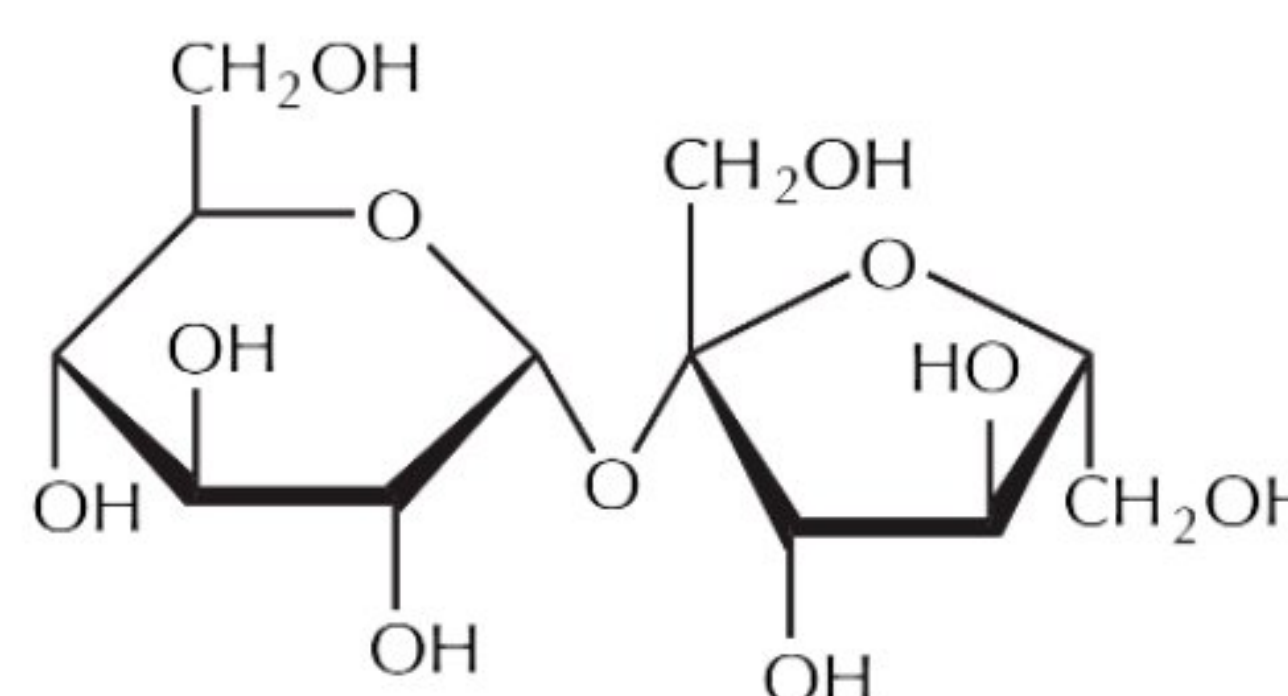
7. How many chiral center(s) is/are present in the ring structure of 2-deoxyribose?

- A. 5
- B. 2
- C. 3
- D. 4

Answer: C

8. The following structure represents:

- A. Sucrose
- B. Maltose
- C. Lactose
- D. Ribose



Answer: A

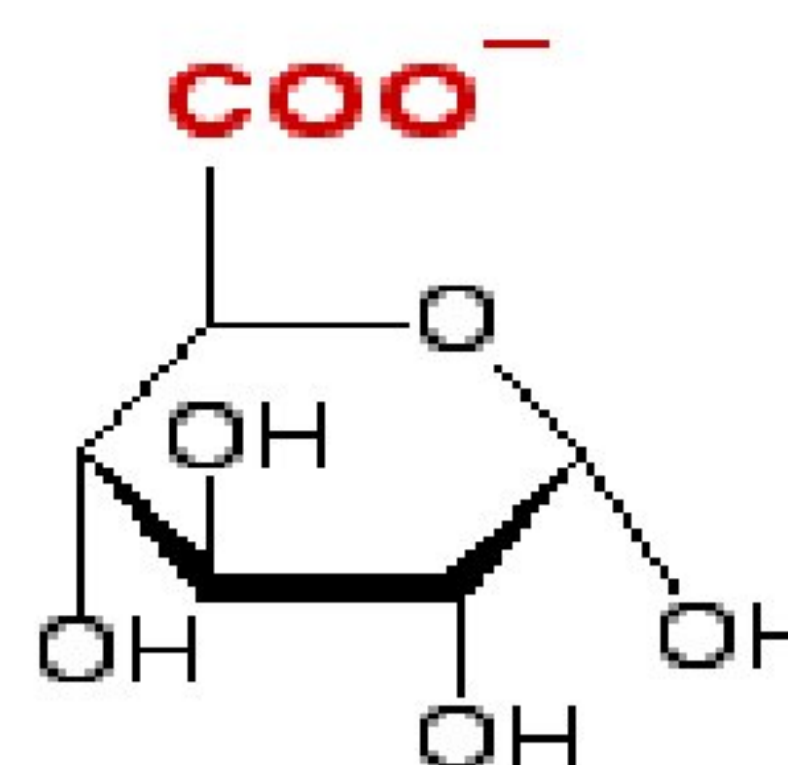
9. Which of the following is a property of Waxes:

- A. Saponifiable
- B. very resistant to rancidity
- C. Butter is an example
- D. Digestible
- E. Tests positive for Acrolein test

Answer: B

10. The following molecule results by?

- A. Strong oxidizing agent
- B. Reducing agent
- C. Weak oxidizing agent
- D. An enzyme



Answer: D

11. The lipoprotein that has the highest lipid content and the lowest protein content is:

- A. HDL
- B. Chylomicrons
- C. LDL

Answer: B



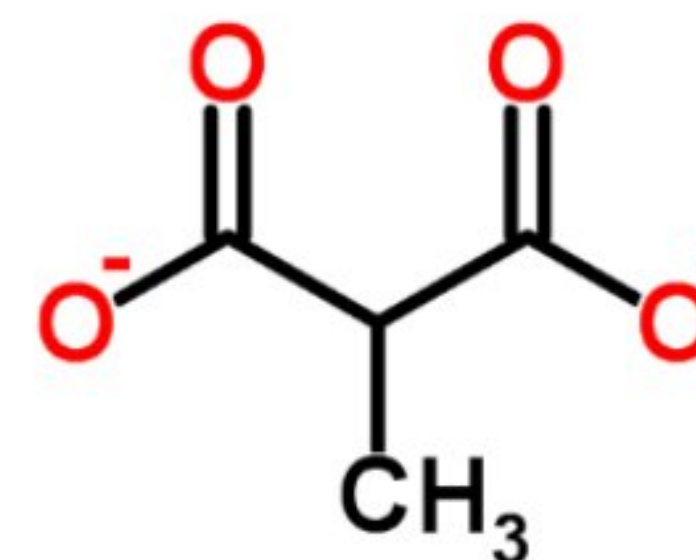
12. Which of the following is an omega 3 fatty acid?

- A. 18:3  $\Delta^{9,12,15}$
- B. 18:3  $\Delta^{9,12}$
- C. 18:1  $\Delta^9$
- D. 20:  $\Delta^{5,8,11,14}$

Answer: A

13. The following structure describes:

Answer: a conjugate base of a weak acid



14. The pKb of a base is 3.0. what is the pH of a 1 mM solution of the base?

- A. 8
- B. 3
- C. 11
- D. 6

Answer: D

15. Water acquires its high specific heat, boiling point, melting point and other physical properties because:

- A. It is an amphipathic molecule
- B. It has a high ion product of water
- C. It can form hydrogen bonds with each other
- D. It can dissociate to protons and hydroxyl ions
- E. It acts as an amphoteric molecule

Answer: C

16. Protein buffer system:

- A. Acts both intracellularly and extracellularly
- B. Activates carbonic anhydrase when pH is increased
- C. Acts only intracellularly
- D. Is related to the phosphate groups at phosphorylation sites
- E. Has a pKa of 6.1

Answer: A



**17. You want to turn a solution containing X moles of  $\text{Ca(OH)}_2$  into a buffer solution.**

**Which of the following should you add?**

- A. 2X moles of acetic acid
- B. X/2 moles of acetic acid
- C. 2X moles of HCL
- D. 3X moles of acetic acid
- E. X moles of  $\text{H}_2\text{SO}_4$

**Answer: D**

**18. Amylopectin is composed of \_\_\_\_ that are connected by \_\_\_\_ and branched at:**

- A. Galactose residues, alpha-1,4 linkage, carbon number 1
- B. Glucose residues, alpha-1,4 linkage, carbon number 6
- C. Galactose residues, alpha-1,4 linkage, carbon number 6
- D. Ribose residues, alpha-1,4 linkage, carbon number 6
- E. Glucose residues, beta-1,4 linkage, carbon number 1

**Answer: B**

**19. The hetero polysaccharides with sulfated sugars, amino sugars and/or Oxidized sugars that are mainly derived of glucose and galactose and are found in extracellular matrix are:**

- A. Pectin
- B. Dextran
- C. Chitin
- D. Glycosaminoglycans
- E. Cellulose

**Answer: D**

**20. Increasing reabsorption of  $\text{HCO}_3^-$  can be the mechanism of compensation for:**

- A. A starved individual
- B. An asthmatic patient
- C. An uncontrolled diabetic patient
- D. A mountain climber
- E. A controlled diabetic patient

**Answer: B**

**21. The glycolipid/s which contain/s a sialic acid:**

- A. Gangliosides
- B. Globosides
- C. Cerebrosides

**Answer: A**