Midterm exam 2016

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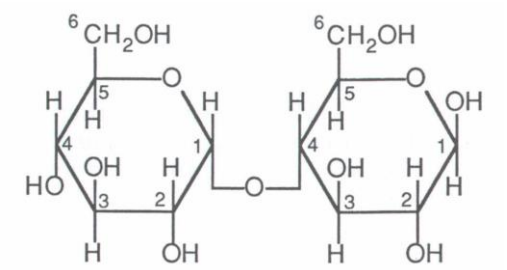
1. A patient was found to have undetected diabetes mellitus for a while, in the urine sample taken [HCO3-] = 14.1 and [CO2] = 1.1, most likely pH of blood was
   A) 7.1
   B) 7.2
   C) 7.4
   D) 7.5
   E) 7.6
2. Which one of the following common in all sphingolipid?
   A) Glycerol
   B) Phosphate
   C) N-acytlgalactoamine
   D) Ceramide
3. Fatty acid 16:1^9 is the structure of:
   A) stearic acid
   B) oleic acid
   C) oleinoic acid
   D) mystiric acid
   E) palmitoleic acid
4. If you have x moles of KOH how many moles of an acid must be added to make a buffer solution?
   A) 2X HCl
   B) X/2 acetic acid
   C) 1.5 X acetic acid
   D) X acetic acid
5. Which of the following sugars has a beta glycosidic linkage

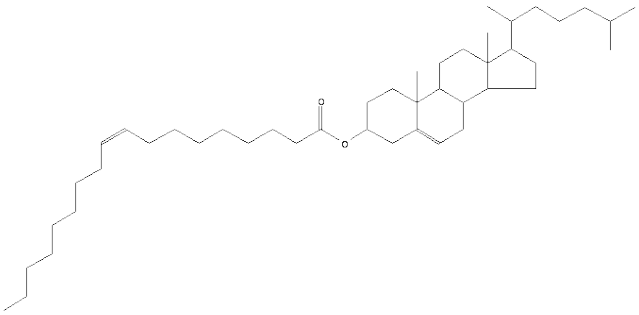
   A) chitin
   B) sucrose
   C) lactose
   D) none of the above
6. Which of the following amino acids will be in the interior of a globular protein?
   A) leucine
   B) threonine
   C) serine
   D) cysteine
7. What is the wrong about D and L configuration:
   A) D sugars Exist in abundance in nature
   B) all of the amino acid in protein is L configuration
   C) they don't deferent in anomeric carbon
   D) they are deferent in only last chiral center
   E) more than one of the above
8. Which one of the following works as a buffer?
   A). KOH
   B). NaOH
   C). HCL
   D). H2SO4
   E). None of the above

9. The pKa of a base is 4. If you have a 0.01M solution of this base, what is the pH?
   A) 8
   B) 9
   C) 10
   D) 11
   E) 12
10. Which of the following is correct about this structure?
   A). It is lactose
   B). It contains B-glucose
   C).it is a non-reducing sugar
   D). This is a beta-(1-4) linkage.



11. A patient walks into your clinic, after you test her it turns out that the material surrounding her nerves is destroyed. This material is:
   A) Phosphatidylinositol
   B) Cerebdrosides
   C) sphingomyelins
   D) glycoproteins
   E) Cephalin
12. How many chiral carbons are there in deoxyribose
   A)1
   B) 2
   C) 3
   D) 4
   E) none
13. Which of the following gives a good protein buffer system:
   A) His
   B) Arg
   C) Asp
   D) Asn
   E) all of the above
14. Which amino acid cannot be found in human proteins?
   A)- histidine
   B)-Ornithine
   C)- serine
   D)- glycine
   E)- glutamic acid
15. What charged groups Glutamine has at physiological PH in the blood?
   A). Coo-, NH3+
   B). COO-, COO-, NH3+
   C). COOH, COOH, NH3+
   D). COOH, COO-, NH3+
   E). COOH, COO-, NH2

16. Which one is derived from aliphatic amino acid
    A) Dopa
    B) epinephrine
    C) aspartame
    D) norepinephrine
    C) histamine
17. The name of the following structure:
    A) Cholesteryl oleate
    B) cholesteryl palmitate
    C) cholesteryl stearate
    D) cholesteryl laurate



18. If 10 m moles of NaOH were dissolved in 1 L of water. What will be the pH of the solution?
    A) 2
    B) 1
    C) 3
    D) 12
    E) 9
19. What initial effects does hyperventilation have on the human's blood pH and H2CO3 concentration?
    A) pH increases and [H2CO3] increases
    B) pH increases and [H2CO3] decreases
    C) pH decreases and [H2CO3] increases
    D) pH decreases and [H2CO3] decreases
20. Gastric juice (pH= 1.4) compared to human's blood (pH= 7.4):
    A) [H+] in gastric juice is 6 times higher than in blood
    B) [H+] in gastric juice is 10^6 times higher than in blood
    C) [H+] in blood is 10^6 times higher than in gastric juice
    D) [H+] in gastric juice is 7 times higher than in blood
21. Below is the pKa for weak acids, which weak acid will be approximately 9% dissociated at ph3.88?
    A. Acetoacetic acid (pKa=3.6)
    B. Lactic acid (pKa=3.9)
    C. Beta-hydroxyl butyric acid (pKa=4.6)
    D. Propionic acid (pKa=4.9)
    E. Imidazolium (pKa=5.9)

22. The two most important buffer systems in blood are:
    A. Phosphorylated organic metabolites and hemoglobin
    B. Inorganic phosphate and hemoglobin
    C. phosphorylated organic metabolites and pyruvate
    D. hemoglobin and albumin
    E. hemoglobin and bicarbonate

23. A 20 years old lady has attended your clinic complaining of problems in vision and balance. Your investigation showed that she has a severe damage in the material that warps the axons of her neurons. this material is:
    A. A ganglioside
    B. A lecithin
    C. A sphingomyelin
    D. A galactocerebroside
    E. A glucocerebroside
24. The following membrane lipid is a major component of the inner mitochondrial membrane:
    A. Lecithin
    B. Cephalin
    C. Cardiolipin
    D. Glycolipids
    E. Phsphatidyl-inositol
25. Gangliosides contain all the following **EXCEPT:**
    A. Fatty acid
    B. Phosphate
    C. Ceramide
    D. Hexose
    E. N-acetyl neuraminic acid (sialic acid)
26. All sphingolipids have in common:
    A. Ceramide
    B. Phosphorylcholine
    C. N-acetylneuraminie acid
    D. Glycerol
    E. Phosphate
27. Which of the following amino acid(s) contain(s) sulphur atom in the side chain?
    A. Serine
    B. Tryptophan
    C. Methionine
    D. A & B
    E. B & C
28. Phenylalanine can be used to synthesize the following amino acid:
    A. Ser
    B. Trp
    C. Thr
    D. Tyr
    E. Orn
29. Which of the following is a reduced sugar?
    A. 2-deoxyribose b. Fructose c. sucrose d. galactose

30. Glycosaminoglycans are characterised by all of the following features **EXCEPT**:
    A. The basic unit is a repeated disaccharide
    B. At least, one sugar has an amino group
    C. At least, one sugar is negatively charged with acidic group
    D. The sugars are derived from glucose or fructose
    E. It is attached to proteins forming proteoglycans

31. Arrange the following fatty acids according to their melting point starting from the largest to the smallest (oleic acid, linoleic acid, palmitic acid and palmitoleic acid):
    A. palmitic acid, oleic acid, palmitoleic acid and linoleic acid
    B. palmitic acid, palmitoleic acid, oleic acid and linoleic acid
    C. linoleic acid, palmitoleic acid, palmitic acid and oleic acid
    D. linoleic acid, palmitoleic acid, oleic acid and palmitic acid
    E. oleic acid, linoleic acid, palmitoleic acid, and palmitic acid
32. the polysaccharide in a bacterial cell wall has all the following features **EXCEPT:**
    A. is a heteropolysaccharide of NAG and NAM
    B. is a homopolysaccharide of sialic acid
    C. is a polysaccharide crosslinked by peptides
    D. sugars are connected directly to tetrapeptides
    E. the strands are connected by Gly pentapeptides
33. which of the following is an amino acid not found in proteins?
    A. Asparagine
    B. Ornithine
    C. Isoleucine
    D. Proline
    E. Cysteine
34. In a vegetarian jello, the manufacturer used a gelling material which:
    A. Is a polymer of glucuronic acid
    B. Has animal cell organs
    C. Has carboxyl on C6
    D. Has a five membrane ring structure
35. All of the following are from cholesterol except:
    A. Testosterone
    B. Vitamin D
    C. Thromboxane
    D. Estradiol
36. Cellulose fibres are healthy because:
    A. They are carcinogenic
    B. They allow more cholesterol absorption
    C. They contain unsaturated fats
    D. They bind to toxic substances to decrease their absorption
37. Which of these is in the lipid family:
    A. Beta-carotene
    B. Retinol
    C. Alpha- tocopherol
    D. All of the above

38. Which is not correct about glucose?
    A. It is an epimer of mannose
    B. It is an epimer of galactose
    C. Only D-isomer exist in mammalian cells
    D. It mainly exists as open chain in solution

39. The following amino acid is hydroxylated in collagen:
    A. Pro and Leu
    B. Pro and Ile
    C. Gly and Pro
    D. Pro and Lys
40. Regarding the COX isoenzymes. All are true except:
    A. COX-1 is present in all tissues
    B. COX-2 is inducible by inflammatory stimuli
    C. Aspirin inhibits COX-1 and COX-2
    D. Acetaminophen, which inhibits COX-3, has strong anti-inflammatory action.
41. D-glucose and D-galactose has all of the following except:
    A. Hexoaldoses
    B. They are Diastereoisomers
    C. They are anomers
    D. They are reducing sugars
42. they polysaccharide which glucose is stored as in animal cells:
    A. is stored in the melanocytes and hepatocytes
    B. it contains Beta-linkage
    C. it extremely branched for more efficient energy supply
    D. it is broken down to glucose and maltose

1. B	2. D	3. E	4. C	5. C	6. A	7. D	8. E	9. D	10. B
11. C	12. B	13. A	14. B	15. A	16. C	17. A	18. D	19. B	20. B
21. D	22. E	23. C	24. C	25. B	26. A	27. C	28. D	29. A	30. D
31. A	32. B	33. B	34. C	35. C	36. D	37. D	38. C	39. A	40. D
41. C	42. C								