

YR 1 CLINICAL NUTRITION EXAMINATION -- January 28, 1997.

CHOOSE THE SINGLE BEST ANSWERS FOR QUESTIONS 1 - 61.

1. One of the following has alpha 1,6 glucosidic bonds
  - A. Amylose
  - B. Lactose
  - C. Cellulose
  - D. Hemicellulose
  - E. Amylopectin
  
2. Pepsin is specific for attacking internal peptide bonds formed by:
  - A. Tyrosine
  - B. Arginine
  - C. Glutamic acid
  - D. Threonine
  - E. Serine
  
3. A lower than normal serum albumin level is one of the characteristics of:
  - A. Hypoglycin toxicity
  - B. Korsakoff syndrome
  - C. Erucic acid toxicity
  - D. Kwashiorkor
  - E. Dowager's hump

4. Lignin:
- A. Inhibits cholesterol synthesis by the liver
  - B. Is a polymer of glucose units joined by alpha 1,4 glucosidic bonds
  - C. Is a polymer of galactose and galacturonic acid
  - D. Has the ability to bind bile salts
  - E. Has an effect of increasing transit time
5. An individual on a strict vegetarian (vegan) diet for a couple of years is likely to be deficient in
- A. Cobalamin
  - B. Copper
  - C. Manganese
  - D. Pyridoxine
  - E. Vitamin A
6. An individual has maintained his weight at 170 pounds on his normal diet which provides 2500 calories daily. If he want to lose 10 pounds in 70 days he will have to reduce his daily total caloric intake to
- A. 1800
  - B. 1900
  - C. 2000
  - D. 2100
  - E. 2200
7. Body mass index is defined as:
- A.  $\text{Body weight in pounds}/(\text{height in feet})^2$
  - B.  $\text{Body weight in kilograms}/\text{weight in meters}$
  - C.  $\text{Body weight in kilograms}/(\text{height in feet})^2$
  - D.  $\text{Body weight in pounds}/(\text{height in meters})^2$
  - E.  $\text{Body weight in kilograms}/(\text{height in meters})^2$
8. Rhodopsin is opsin combined with
- A. 11 cis retinal
  - B. All trans retinol
  - C. 17 dehydroretinal
  - D. 11 cis retinol
  - E. All trans retinal

9. One of the following is not a component of alpha-ketoglutarate dehydrogenase complex
- A. Flavin adenine dinucleotide
  - B. Lipoic acid
  - C. Thiamine pyrophosphate
  - D. Nicotinamide adenine dinucleotide
  - E. Pyridoxal phosphate
10. Conversion of acetyl CoA to malonyl CoA is dependent on the availability of one of the following nutrients or its active form for the enzyme catalyzing this reaction.
- A. Biotin
  - B. Niacin
  - C. Riboflavin
  - D. Folic acid
  - E. Carnitine
11. Delta-aminolevulinic acid synthetase requires for its activity the coenzyme derived from
- A. Thiamine
  - B. Vitamin B<sub>12</sub>
  - C. Pyridoxine
  - D. Ascorbic acid
  - E. Biopterin
12. One of the following is an omega-3 fatty acid
- A. Dihomogamma linolenic acid
  - B. Oleic acid
  - C. Docasahexaenoic acid
  - D. Palmitoleic acid
  - E. Arachidonic acid
13. Plasma triene to tetraene ratio above normal level (0.4) is a sign of the deficiency of one of the following
- A. Palmitoleic acid
  - B. Lauric acid
  - C. Oleic acid
  - D. Linoleic acid
  - E. Erucic acid
14. Dihomogamma linolenic acid is a precursor of
- A. Prostaglandin E<sub>1</sub>
  - B. Prostacylin I<sub>2</sub>
  - C. Thromboxane A<sub>3</sub>
  - D. Leukotriene B<sub>4</sub>
  - E. Leukotriene C<sub>5</sub>

15. An excessive intake of one of the following for several years causes teeth to become discolored and mottled
- A. Fluorine
  - B. Cobalt
  - C. Chromium
  - D. Nickel
  - E. Boron
16. Chromium is a component of
- A. Alkaline phosphatase
  - B. Ceruloplasmin
  - C. Glucose tolerance factor
  - D. Carbonic anhydrase
  - E. Superoxide dismutase
17. During pregnancy mother's higher than normal circulating homocysteine levels are associated with the birth of babies with
- A. Celiac disease
  - B. Menke's disease
  - C. Crooked calf syndrome
  - D. Fetal alcohol syndrome
  - E. Neural tube defects
18. Bifidus factor
- A. Is increased in mother's blood during pregnancy
  - B. Is decreased in blood in Wilson's disease
  - C. Is a toxicant present in orange peel
  - D. Is present in human milk
  - E. Ingestion can cause a condition called lathyrism
19. One of the following is required for the optimal activity of phenylalanine hydroxylase
- A. Tetrahydrobiopterine
  - B. Dithiothreitol
  - C. Tetrahydrofolate
  - D. Magnesium
  - E. Flavin mononucleotide
20. One of the following is an index of body muscle mass
- A. Urinary excretion of methyl histidine
  - B. Urinary excretion of methyl lysine
  - C. Urinary excretion of urea
  - D. Urinary excretion of methyl arginine
  - E. Urinary excretion of carnitine

21. In humans sulfa drugs are primarily detoxified by the action of
- A. Cytochrome P450 reductase
  - B. Amino acid conjugase
  - C. Enteropeptidase
  - D. N-acetyl transferase
  - E. Rhodanese
22. Chronic granulomatous disease is caused due to one of the following defects in neutrophils
- A. Inability to produce superoxide
  - B. Excessive production of superoxide
  - C. Deficiency of superoxide dismutase
  - D. Deficiency of myeloperoxidase
  - E. Excessive production of hypochlorous acid
23. One gram of aspartame (nutrasweet) when consumed provides
- A. No calories
  - B. 0.5 calories
  - C. 1 calorie
  - D. 2 calories
  - E. 4 calories
24. Refsum s disease is caused by
- A. A defect in the metabolism of phytanic acid
  - B. A deficiency of copper
  - C. A defect in the metabolism of phytic acid
  - D. A deficiency of selenium
  - E. A defect in the metabolism of branched-chain amino acids
25. Cholestyramine
- A. Inhibits HMG-CoA reductase
  - B. Is excreted in the urine in combination with glucuronic acid
  - C. Is a metabolite derived from cholecalciferol
  - D. Has the ability to bind bile salts
  - E. Is a toxicant present in fava beans
26. One of the following is part of folic acid molecule
- A. Para-amino benzoic acid
  - B. Aspartic acid
  - C. Choline
  - D. Serine
  - E. Methotrexate

27. As compared to adults the new born and especially premature infants, have reduced ability to synthesize from the endogenous precursor one of the following
- A. Bilirubin
  - B. Cysteine
  - C. Tyrosine
  - D. Glycine
  - E. Serine
28. The substance that is present in raw egg white that reacts and inactivates biotin is
- A. Linetin
  - B. Azoxy methanol
  - C. Solanine
  - D. Avidin
  - E. Lactoferrin
29. Patients with celiac disease are especially sensitive to
- A. Fructose
  - B. Fava beans
  - C. Gluten
  - D. Sorbitol
  - E. Oxalate
30. Crigler Najjar syndrome is associated with the deficiency of
- A. Pantothenic acid
  - B. UDP glucuronyl transferase
  - C. Amino acid conjugase
  - D. Sulfo transferase
  - E. Glycosyl transferase
31. In healthy adults dietary deficiency of one of the following leads to negative nitrogen balance
- A. Glycine
  - B. Serine
  - C. Cysteine
  - D. Leucine
  - E. Taurine
32. All of the following elevate total serum cholesterol levels, EXCEPT
- A. Dietary cholesterol
  - B. Alcohol
  - C. Saturated fat
  - D. Obesity
  - E. Excess total dietary fat

33. Major sources of saturated fats or cholesterol in the diet include the following EXCEPT
- A. Red meat
  - B. Poultry
  - C. Potato chips
  - D. Eggs
  - E. Cheese
34. High consumption of simple sugars is associated with
- A. Elevated total cholesterol
  - B. Elevated triglycerides
  - C. Decreased HDL cholesterol
  - D. Both A & B
  - E. Both B & C
35. How could a patient receiving insulin become overweight?
- A. Insulin injections contain many calories
  - B. Insulin leads to muscle inactivity
  - C. Insulin increases lipogenesis
  - D. Insulin stimulates cAMP production
  - E. Insulin stimulates hormone sensitive lipase
36. Which of the sugars would be MOST LIKELY beneficial for patients with diabetic neuropathy
- A. Fructose
  - B. Galactose
  - C. Inositol
  - D. Sorbitol
  - E. Lactose
37. Which of the following constitutes the only acceptable drug therapy for severe alcoholic hepatitis?
- A. 3TC
  - B. Interferon
  - C. Propylthiouracil
  - D. Colchicine
  - E. Corticosteroids
38. Liver injury induced by ethanol involves each of the mechanisms listed EXCEPT for
- A. Primary malnutrition
  - B. Secondary malnutrition
  - C. Direct toxicity
  - D. Hypoxia
  - E. Acetaldehyde

39. The crystalline substance responsible for acute gouty arthritis is
- A. Calcium pyrophosphate crystals
  - B. Monosodium urate crystals
  - C. Calcium hydroxyapatite crystals
  - D. Tophaceous calcified deposits
  - E. Calcium oxalate crystals
40. In human beings, the majority of uric acid excretion is accomplished by
- A. Bacterial oxidation of uric acid in the gut
  - B. Conversion of uric acid to the more soluble allantoin by uricase, and renal excretion
  - C. Xanthine oxidase conversion of uric acid to xanthine
  - D. Renal excretion of filtered uric acid
  - E. Xanthine conversion to hypoxanthine
41. Cholesterol normally is used by the body for all of the following EXCEPT
- A. In cell membranes
  - B. In the gut as a component of bile
  - C. In steroid synthesis
  - D. In the nuclei of myocardial cells
  - E. As a component of myelin



For each numbered item below, select the one lettered option that is most closely associated with it. Each lettered answer may be selected once, more than once or not at all.

42. Hypercholesterolemia

43. Accumulation of chylomicrons

- A. Deficiency of lipoprotein lipase
- B. Deficiency or abnormality of LDL receptors
- C. Type III hyperlipoproteinemia
- D. Deficiency of lecithin cholesterol acyl transferase
- E. Deficiency of lipoic acid

44. Has a role in the oxidation of long-chain fatty acids
45. Has a role in the detoxication of organic acids in blood
- A. Anagerine
  - B. Biopterine
  - C. Rhodanese
  - D. Carnitine
  - E. Acyl carrier protein
46. Is required for the hydroxylation of proline in collagen precursor
47. Is required for the carboxylation of glutamate residues in some proteins
- A. Ascorbic acid
  - B. Menaquinone
  - C. Alpha tocopherol
  - D. Niacin
  - E. Folic acid
48. Lysyl oxidase contains
49. Xanthine oxidase contains
- A. Copper
  - B. Manganese
  - C. Molybdenum
  - D. Zinc
  - E. Iron
50. Products of hydrolysis of lactose by lactase are
51. Products of hydrolysis of maltose by maltase are
- A. Glucose plus glucose
  - B. Glucose plus galactose
  - C. Glucose plus fructose
  - D. Fructose plus galactose
  - E. Glucose plus glucose plus glucose
52. Is associated with vitamin A deficiency

53. Is associated with Thiamine deficiency
- A. Amyotrophic lateral sclerosis
  - B. Gingivitis
  - C. Nyctalopia
  - D. Decrease in blood pyruvate
  - E. Wernicke encephalopathy
54. Secretin
55. Leptin
- A. Is secreted by the placenta
  - B. Is secreted by adipocytes
  - C. Is secreted by parietal cells
  - D. Is secreted by jejunal mucosal cells
  - E. Is secreted by the pancreas
56. Is also known as the slow reacting substance of anaphylaxis
57. Contains cysteine
- A. Leukotriene A<sub>4</sub>
  - B. Leukotriene A<sub>5</sub>
  - C. Leukotriene B<sub>4</sub>
  - D. Leukotriene B<sub>5</sub>
  - E. Leukotriene C<sub>4</sub>
59. Aspirin inhibits
59. Cortisone inhibits
- A. Lipoxygenase
  - B. Cytochrome P450 reductase
  - C. Thromboxane synthetase
  - D. Cyclooxygenase
  - E. Phospholipase A<sub>2</sub>
60. A very low plasma selenium is associated with
61. A very high urinary excretion of methylmalonic acid is associated with
- A. Menke's disease
  - B. Miliaria crystallina
  - C. Hemochromatosis
  - D. Keshan disease
  - E. Megaloblastic anemia