



**CHS261: Principles of Nutrition  
Final Exam (Students Model)**

Time allowed: 2 hours

Date: / /1438

الاسم: \_\_\_\_\_ الرقم الجامعي: \_\_\_\_\_ رقم الكشف: \_\_\_\_\_

**Part I:** Write True or False between brackets and correct the false question (s) by underlining the false word(s) and write it (them) under each question. Non corrected false question (s) will be given zero: **Carefully transfer your answers to the answer sheet that will be checked and marks will be given based on your answers in the answer sheet.**

( marks)

1. Without recycling bile acids, synthesis of new bile acids in the liver would not keep pace with needs for adequate fat digestion
2. Inside the intestinal villi, there are lacteals which absorb digested fat
3. Basal metabolic rate represents about **10%** (**60-70%**) of daily total energy expenditure
4. Fat-free mass and Lean Body Mass are metabolically **inactive** (**active**) tissues
5. **Non athletes** have higher water than **athletes** (Vise versa)
6. Major extracellular electrolytes are sodium, chloride, and **potassium** (**bicarbonate**)
7. **Polysaccharides** (oligosaccharides) are composed of 3-10 monosaccharide units and can not be digested by the human being
8. **Soluble** (Insoluble) dietary fibers increase stool weight and promote laxation
9. Nutrients with fewer than 50 amino acids are called **proteins** (peptides)
10. Conditionally essential amino acids are **essential** amino acids become **nonessential** under special circumstances (**vise versa**)
11. **Incomplete** (partially complete) proteins can be combined to provide essential amino acids equivalent to high biological proteins from animal sources
12. In the **saturated** (unsaturated) fatty acids,  $\omega$  refers to the placement of the first double bond counting from the **carboxyl** (methyl) end
13. Micelles are formed in the intestinal lumen while chylomicrons are formed inside intestinal cells
14. **HDL** (LDL) favors lipid deposition in tissues including blood vessels
15. Animal source vitamins are more bioavailable than plant source vitamins
16. Almost all animals, **human** and plants can synthesize their own needs for vit C
17. **Fruits and vegetables** (foods of animal origin) are rich sources of Cyanocobalamin
18. The daily need for **trace** (major – macro) minerals is more than 100 mg and are present in the body in quantities greater than 5 g
19. Phytates in wheat bran can reduce the absorption of certain minerals such as zinc, copper, iron, calcium
20. Milk contains both vitamin D and lactose that facilitate absorption
21. Persistent excessive sodium intake **decreases** (increases) urinary calcium excretion and can lead to hypertension
22. Potassium may prevent increased calcium excretion caused by a high salt diet
23. The thirst developed due to sodium deficiency **can** (cannot) be alleviated by drinking fluid alone,
24. **Non heme** iron is absorbed more than twice as efficiently as **heme** iron (**vise versa**)
25. Excess iron **can** (cannot) be excreted in the urine

**Part II: Circle the correct answer: Carefully transfer your answers to the answer sheet that will be checked and marks will be given based on your answers in the answer sheet.**  
( marks)

1. The followings are nutrients giving energy **EXCEPT:**
  - a) carbohydrates,
  - b) fats,
  - c) proteins
  - d) **vitamins**
2. The most potent lipid-digesting enzyme is the:
  - a) **Pancreatic lipase**
  - b) Gastric lipase
  - c) Lingual lipase
  - d) Pepsin
3. Using specific carrier to transport nutrients or the carrier changes the cell membrane in such a way that the nutrients can pass through: -
  - a) chemical digestion
  - b) simple diffusion
  - c) **facilitated diffusion**
  - d) active transport
4. They stimulate colonocyte proliferation and enhance absorption of electrolytes and water
  - a) **Short Chain Fatty Acids**
  - b) Pancreatic secretions
  - c) Gastric secretions
  - d) Salivary amylases
5. When the energy intake is lower than energy expenditure, the body will be in:
  - a) isocaloric balance and its weight will be maintained
  - b) positive caloric balance and its weight will increase
  - c) positive caloric balance and its weight will be maintained
  - d) **negative caloric balance and its weight will decrease**
6. Minimum amount of energy required to sustain the body's essential metabolic processes is:-
  - a) **basal metabolic rate**
  - b) thermic effect of food
  - c) energy expended in physical activity
  - d) carbohydrates, fats, and proteins
7. The followings are **TRUE** about basal metabolic rate **EXCEPT:-**
  - a) **Marasmus & kwashiorkor increases the BMR**
  - b) Starving, fasting, eating too few calories reduce the BMR
  - c) Physical activities increases the BMR
  - d) Very low or very high temperatures increases the BMR
8. It is a food group that healthy adults can consume 2-4 servings, and provides them with carbohydrates, Vit C and dietary fiber.
  - a) Meat, Poultry, Fish, Dry Beans, Eggs & Nuts Group
  - b) **Fruit Group**
  - c) Vegetable Group
  - d) Milk, Yogurt & Cheese Group

9. Maltose (malt sugar) is composed of:
- glucose + fructose
  - galactose + glucose
  - glucose + glucose**
  - galactose + Galactose
10. They are complex carbohydrates that yield more than one type of monosaccharides on hydrolysis:
- Oligosaccharides
  - Homopolysaccharides
  - Heteropolysaccharides**
  - Triglycerides
11. The only dietary fiber that is **not a carbohydrate** is:
- cellulose
  - lignin**
  - pectin
  - gum
12. A non-caloric sweetener obtained from the leaves of permanent shrub and has been used for many years in traditional medicine for the treatment of diabetes.
- Trans fats
  - Polyols
  - Aspartame
  - Stevia**
13. Proteins containing sufficient amounts of amino acids to maintain life but fail to promote growth are called
- complete,
  - partially complete**
  - incomplete
  - Conditionally essential
14. The recommended daily protein intake (g) for lactating women is:
- 0.8 g /Kg BW + (25 g during the first 6 months and 18 g later on)**
  - 0.8 g /Kg BW + (15 g during the first 6 months and 8 g later on)
  - 0.8 g /Kg BW
  - 8 g /Kg BW
15. The followings are essential fatty acids **except**,
- linolenic acid
  - linoleic acid
  - Arachidonic acid
  - Plamitic acid**
16. It is a monounsaturated non-essential fatty acid found in olive, peanut oil and canola oils:
- oleic acid**
  - linoleic acid
  - linolenic acid
  - Arachidonic acid
17. The fatty acid "20:4  $\omega$ -6" has:
- 20 carbons, 4 double bonds; the first one is at the 6<sup>th</sup> carbon from the terminal methyl group.**
  - 20 carbons, 6 double bonds; the first one is at the 4<sup>th</sup> carbon from the terminal methyl group.
  - 20 carbons, the 4<sup>th</sup> and 6<sup>th</sup> carbons are with double bonds
  - 20 carbons, the 4<sup>th</sup> carbon replaces the and 6<sup>th</sup> carbon

18. Fatty acids with 16- 22 carbon atoms are:
- a) short chain fatty acids
  - b) medium chain fatty acids
  - c) **long chain fatty acids**
  - d) Very long chain fatty acids
19. The following vitamins are necessary for healthy bones:
- a) B1, B2 and B3
  - b) B6, B9 and B12
  - c) **C, D and K**
  - d) Calcium, phosphorus and magnesium
20. Calcium absorption can be decreased by:
- a) **Excess fibers**
  - b) ascorbic acid and lactose
  - c) Estrogen
  - d) Vitamin D
21. All of the followings decrease iron absorption; **except:**
- a) phytic acid in fiber
  - b) polyphenols in tea and coffee.
  - c) full body stores of iron
  - d) **animal proteins**
22. DASH is an approach to control:
- a) **Hypertension**
  - b) Diabetes
  - c) Goiter
  - d) Hemochromatosis

**Part III:** writing the question number from column (A) beside its correct answer in column (B).  
Carefully transfer your answers to the answer sheet that will be checked and marks will be given based on your answers in the answer sheet.

( marks)

#	Column (A)
1.	Malnutrition
2.	<u>Bolus</u>
3.	Sodium bicarbonate
4.	Lean Body Mass
5.	Thermic effect of food
6.	<i>Metabolic water</i>
7.	<i>Gluconeogenesis</i>
8.	<i>Free radicals</i>
9.	<i>Salt sensitivity</i>
10.	<i>Goitrogens</i>

#	Column (B)
	any condition caused by excess or deficient food energy or nutrient intake or by an imbalance of nutrients
	a mouthful of food that has been swallowed
	alkaline solution secreted from the pancreas to neutralize the acidic chyme providing proper pH for enzymes of both intestine and pancreas
	includes fat that acts as fuel for energy production but does not include storage fat (S/C fat or fats surrounding internal organs)
	energy expenditure associated with the consumption, digestion, and absorption of food
	water produced during metabolism of the energy nutrients
	formation of glucose from non-carbohydrate sources
	highly reactive toxic substances that lack electrons and try to take them from other molecules to regain balance
	a characteristic of individuals who respond to high sodium chloride intake with increasing blood pressure <u>OR</u> low intake with decreasing blood pressure
	substances that block the transport and utilization of iodine by thyroid gland

**Part IV:** Fill the following blanks with the correct word (s):

( marks)

1. Major intracellular electrolytes are; **(1) Potassium, (2) magnesium, and (3) phosphate**
- 2.

**Calculate the followings for a female engaged in moderate activity; height= 160 cm**

1. The ideal body weight=	$(\text{height in cm} - 100) - \{(\text{height in cm}) - 150\}/2\}$	55.0
2. Basal Metabolic rate (BMR) =	$0.9 \text{ kcal} \times \text{BW (kg)} \times 24 \text{ hrs}$	1188.0
3. BMR and energy expended in physical activity (PA)=	$\text{BMR} \times 1.55$	1841.4
3. Thermic effect of food (TEF) =	10% of BMR+ energy expended in Physical activity	184.1
4. Total Energy Expenditure (TEE)=	$\text{BMR} + \text{energy in PA} + \text{TEF}$	2025.5
5. Distribute total energy expenditure among the following nutrients;		
<b>Protein 15%=</b>	303.8	
<b>Carbohydrates (60%)=</b>	1215.3	
<b>Fat (25%)=</b>	506.4	
6. calculate the amount needed from each of the above nutrients in grams:		
<b>Protein =</b>	76.0	
<b>Carbohydrates=</b>	303.8	
<b>Fat =</b>	56.3	

3. Vitamins are classified into either
  - 1) **Water soluble**
  - 2) **Fat soluble**
4. Iron in foods presents as either:
  - 1) **heme iron** in animal products
  - 2) **Nonheme iron** mainly in plant products
5. Iron-containing compounds in the body are grouped into two categories:-
  - 1) **functional iron:** chiefly in hemoglobin
  - 2) **storage or nonessential iron:** chiefly in the liver, spleen, and bone marrow.