

**Avinashilingam Institute for HomeScience and Higher Education For Women
(Deemed to be University)Coimbatore-43
Semester Examination –November 2018
I Semester**

**Class :I BSc
Major :Food Service Management**

**Max Marks :100
Time-3 Hours**

18BFDC02 Principles of Nutrition

**Part-A
Choose the correct answer**

10 x 1=10

1. Bomb calorimeter is used to determine _____value of food
a) energy b)protein c)fat d)vitamin
2. _____ is a polysaccharide.
a) fructose b) lactose c) starch d) maltose
3. The weight gain per gram of protein intake is_____
a) PER b)BV c)NPU d)DC
4. Fat in butter is_____
a) butyric acid b)palmitic c)stearic d)oleic acid
5. The calcium phosphorus ratio in adult bone is _____
a)1:1 b)2:1 c) 1:2 d)2:0
6. Non-haem iron is found mostly in _____
a) plant foods b) animal foods c) sea foods d)milk
7. Wet beri beri is due to deficiency of ____
a) Retinol b) Tocopherol c) B1 d)B2
8. Dry chopped appearance of the lips with superficial ulcers in riboflavin deficiency is _____
a)Glossitis b)Cheilosis c) Stomatitis d)Magenta tongue
9. Pellagra is due to deficiency of _____
a)Niacin b)Thiamine c) Riboflavin d)Retinol
10. Function of dietary fibre is_____
a)energy giving b)detoxification c)body building d)growth

Part B
Answer the following
Answer should not exceed 400 words or two pages

5 X 6=30

11. a) Identify the factors that affect the BMR.
Or
11. b) Examine the importance of diet survey to correct the nutritional deficiency.
12. a) Classify carbohydrates with sources.
Or
12. b) Compare the saturated fat and unsaturated fat with examples.
13. a) Explain Iron deficiency anemia. List the sources and requirements of iron.
Or
13. b) List the functions of copper and zinc.
14. a) Illustrate the role of nutrient which helps for blood clotting.
Or
14. b) Classify the water soluble vitamins with its recommendation and sources.
15. a) Identify the importance of water balance in human.
Or
15. b) Differentiate the soluble and insoluble fiber.

Part C
Answer the following
Answer should not exceed 800 words or four pages

5 x 12=60

16. a) Illustrate on the indirect calorimeter with its pictorial representation .
Or
16. b) Interpret the various tools used to assess the nutritional status of children.
17. a) Discuss the calculation procedure to be followed in evaluation of protein quality.
Or
17. b) Explain the digestion, absorption & metabolism of carbohydrate.
- 18.a) Compare the calcium intake with the recommended value and help them to prevent from osteoporosis.
Or
18. b) Analyze the importance, sources, toxicity and deficiency of sodium.
19. a) Describe the functions, sources and deficiency of vitamin D.
Or
19. b) Evaluate the requirement of folic acid and mention its importance of deficiency among pregnant mother.
- 20.a) Evaluate the role of dietary fiber in health.
Or
20.b) Explain the digestion and absorption of fiber.

**Avinashilingam Institute for HomeScience and Higher Education For Women
(Deemed to be University)Coimbatore-43
Semester Examination –December-2018
Semester-I**

SCHEME OF EVALUATION

**Class :I BSc
:100**

Max Marks

Major :Food Service Management

Time-3 Hours

18BFDC02 Principles of Nutrition

Part-A(10X1=10)

Circle the correct answer

1. a)Energy 2. c) starch 3. a)PER 4. a)Butyric acid 5. a)1:1 6. a)Plant foods
7. c) B1 8. b) Cheilosis 9. a)Niacin 10. b)detoxification

Part-B (5X6=30marks)

Answer all the questions

11. a) Body size: Metabolic rate increases as weight, height, and surface area increase.
Body composition: Fat tissue has a lower metabolic activity than muscle tissue.
Gender: The basal metabolic rate (BMR) averages 5 to 10 percent lower in women than in men
Genetics, Physical activity and Hormonal factors

Or

- b) Food balance sheet, inventory method, weighment method,24 hour recall method,food frequency questionnaire and diet history

12. a). Among the compounds that belong to this family are cellulose, starch, glycogen, and mostsugars. There are three classes of carbohydrates: monosaccharides, disaccharides, and polysaccharides. The monosaccharides are white, crystallinesolids that contain a single aldehyde or ketone functional group

SOURCES - Dairy. Milk, yogurt, and ice cream.Fruit. Whole fruit and fruit juice,Grains. Bread, rice, crackers, and cereal Legumes. Beans and other plant-based proteins. Starchy Vegetables. Potatoes and corn. Sugary Sweets

Or

- b) Saturated fatty acids lack double bonds between the individual carbon atoms, while in unsaturated fatty acids there is at least one double bond in the fatty acid chain.Saturated fats are solid at room temperature, while unsaturated fats are liquid. unsaturated fatty acids are palmitoleic acid, oleic acid, myristoleic acid, linoleic acid, and arachidonic acid cream, cheese, butter, other whole milk dairy products and fatty meats which also contain dietarycholesterol. Certain vegetable products have high saturated fat content, such as coconut oil and palm

13. a) iron-deficiency anemia is a common, easily treated condition that occurs if you don't have enough iron in your body. Low iron levels usually are due to blood loss, poor diet, or an inability to absorb enough iron from food. Leafy greens. Leafy greens, especially dark ones, are among the best sources of nonheme iron. Meat and poultry. All meat and poultry contain heme iron. Liver, Seafood. Fortified foods.,Beans. Nuts and seeds
REQ- children aged 2–11 years, **16.3 mg**/day in children and teens aged 12–19 years, and**19.3–20.5 mg**/day in men and 17.0–**18.9 mg**/day in women older than 19.

Or

- b) Copper works with iron to help the **body** form red blood cells. It also helps keep the blood vessels, nerves, immune system, and bones healthy Zinc is found in cells throughout the body. It helps the immune system fight off invading bacteria and viruses. The body also needs zinc to make proteins and DNA, the genetic material in all cells. Zinc also helps wounds heal and is important for proper senses of taste and smell.

- 14 a) The ability to bind calcium ions (Ca²⁺) is required for the activation of the severalvitamin K-dependent clotting factors, or proteins, in the coagulation (clotting)cascade. The term, coagulation

cascade, refers to a series of events, each dependent on the other, that stop bleeding through clot formation.

Or

b) The **water-soluble vitamins** include A in the form of beta-carotene, B6, B12, riboflavin, thiamin, niacin, folate, biotin, and C. **Water-soluble vitamins** are used immediately by your body or they are excreted in your urine.

15. a) The kidneys maintain our body's **water balance** by controlling the **water** concentration of blood plasma. ... For the cells of our body to work properly, it is **important** that their **water** content is maintained at the correct level. This means our body must maintain a **balance** between the **water** we take in and the **water** we lose

Or

b) When soluble fiber, found in oats, chia seeds, psyllium husks, legumes and some fruits, is combined with water it forms a gel-like substance. In the digestive tract, this viscous gel-like substance helps combat diarrhea and has been shown to improve blood sugar control by slowing down the release of glucose into the bloodstream. Along with its effect on blood sugars, soluble fiber also disrupts the absorption of dietary cholesterol and can improve LDL (or "bad") cholesterol.

Part-C (5X12=60 marks)

Answer all the questions

16. a) **Indirect calorimetry** is a technique that measures inspired and expired gas flows, volumes and concentrations of O₂ and CO₂. allows measurement of oxygen consumption and carbon dioxide production. non-invasive and accurate. the equipment used is also known as a metabolic cart.

Or

b) Each child selected for the study underwent different anthropometric measurement such as Gomez classification (Weight for age), Wasting (Weight for height), Stunting (Height for age) and mid-arm circumference by Bangle test, Dietary survey: food consumption pattern 24 hour recall method, clinical examination and biochemical test

17. a) evaluation of protein quality by Biological value, Net Protein Utilisation, Protein Efficiency ratio & protein digestibility

Or

b) All carbohydrates absorbed in the small intestine must be hydrolyzed to monosaccharides prior to absorption. ... Digestion of starch begins with the action of salivary alpha-amylase/ptyalin, although its activity is slight in comparison with that of pancreatic amylase in the small intestine. Carbohydrate metabolism begins with digestion in the small intestine where monosaccharides are absorbed into the blood stream. Blood sugar concentrations are controlled by three hormones: insulin, glucagon, and epinephrine. If the concentration of glucose in the blood is too high, insulin is secreted by the pancreases.

18.a) These recommendations indicate the total amount of calcium from food and supplements combined. The intestines can only absorb about 500-600 mg of calcium at a time, and so total calcium intake should be divided over the course of a day. Taking too much calcium can lead to kidney stone formation.

Or

b)

Trace Minerals

NAME	FOOD SOURCES	FUNCTIONS	DEFICIENCY/ TOXICITY
Iron (Fe ²⁺)	Muscle meat Poultry Shellfish Liver Legumes Dried fruits Whole grain or enriches breads and cereals Dark green and leafy vegetables Molasses	Transports oxygen and CO ₂ Hemoglobin formation Component of cellular enzymes essential for energy production	Deficiency: iron deficiency anemia

19. a). Vitamin D, along with calcium, helps build bones and keep bones strong and healthy. This hormone reabsorbs bone tissue, which makes bones thin and brittle. Increased risk of death from cardiovascular disease, Cognitive impairment in older adults, severe asthma in children

Or

b) What is Folate. Folate, also known as folic acid or folacin, aids in protein metabolism, promoting red blood cell formation, and lowering the risk for neural tube birth defects. Folate may also play a role in controlling homocysteine levels, thus reducing the risk for coronary heart disease. Food Sources for Folate. Sources of folate include liver, kidney, dark green leafy vegetables, meats, fish, whole grains, fortified grains and cereals, legumes, and citrus fruits. Not all whole grain products are fortified with folate. Check the nutrition label to see if folic acid has been added. How much Folate. The Recommended Dietary Allowance (RDA) for folate is 400 mcg/day for adult males and females. Pregnancy will increase the RDA for folate to 600 mcg/day Folate Deficiency. Folate deficiency affects cell growth and protein production, which can lead to overall impaired growth. Deficiency symptoms also include anemia and diarrhea. A folate deficiency in women who are pregnant or of child bearing age may result in the delivery of a baby with neural tube defects such as spina bifida.

20 a) Normalizes bowel movements. Dietary fiber increases the weight and size of your stool and softens it. Helps maintain bowel health Lowers cholesterol levels. Helps control blood sugar levels. Aids in achieving healthy weight

Or

b) Digestion and absorption of fiber carbohydrate in the colon. Most dietary carbohydrates are digested and absorbed in the small bowel. ... The substrate for bacterial fermentation includes compounds for which small bowel digestive and absorptive mechanisms may, or may not, exist and soluble and some insoluble fiber
