

KEY TO ASSIGNMENT

1. Discuss if any, key differences between monosaccharides, disaccharides, and polysaccharides found foods

(Basically, Physical and chemical properties variation, Solubility, Taste, etc.

2. What happens to the content of vitamin C in food if the food is cooked in an iron pot and why? Basically, Effect of processing on Vitamin C

- ✓ *Vitamin C Loss in green leafy vegetables is due to the processing method employed in its preparation.*
- ✓ *The losses due to boiling and microwave heating, and blanching vary according to temperatures.*
- ✓ *Loss as a result of boiling, microwave heating and blanching can be justified since Vitamin C is watersoluble and heat labile.*
- ✓ *Vitamin C is easily leached into the boiling medium, the rate of destruction of vitamin was not uniform.*
 - *The percentage of Vitamin C activity loss was 40-50% on boiling,*
 - *Due to Blanching 20-40%*
 - *Loss due to Microwave is 50-75%*

3. What role does vitamin C play in collagen formation from a biochemical perspective? And further explain why consuming an orange or an apple after a meal has potential to improve the absorption of dietary iron?

- *Vitamin C has a specific function in the synthesis of numerous compounds in the body, including collagen; carnitine; and two neurotransmitters, serotonin and norepinephrine. Vitamin C also has a more general function by acting as an antioxidant because. The important function of vitamin C in the formation of connective tissue is exemplified in the early symptoms of a deficiency: pinpoint hemorrhages under the skin (Fig. 9-7), bleeding gums, and joint pain. Vitamin C is very important for wound healing; it increases the cross-connections between amino acids found in collagen, greatly strengthening the structural tissues it helps form. Without adequate vitamin C, wounds won't heal*
- *Vitamin C is also required for the synthesis of collagen, and neurotransmitters. A vitamin C deficiency causes scurvy, marked by many changes in the skin and gums, because of reduced collagen synthesis. Vitamin C also modestly improves iron absorption and is involved in the synthesis of certain hormones. Many fruits and vegetables are good sources of vitamin C*

Contemporary, Nutrition, Pg. 349.

4. The inhibition of microbial growth is one of the principles of food preservation. Discuss four parameters that one can use to slow down or inhibit the growth of microorganisms

Extrinsic factors

- ✓ Temp
- ✓ RH
- ✓ Gaseous Environment

Intrinsic Factors

- ✓ Water activity
- ✓ PH
- ✓ Nutrient
- ✓ Redox Potential

5. Discuss in detail, why it is recommended to eat foods that are low on the Glycemic Index to prevent or in the management of named nutritional related disease?

Glycemic index (GI) is a ratio of the blood glucose response to a given food compared to standard (typically, glucose or white bread) Low GI foods have potential benefits including the following,

- Reduces Blood sugar Levels,
- Helps in weight loss
- Lowering the risks of heart disease and Type 2 Diabetes
- Low-glycemic index diets increased body fat loss
- Source: (Contemporary Nutrition,

6. MLX Super shake drink is convenient ready-to-drink fruit smoothie comes in a 250 ml plastic bottle with a screw-top lid. The label states the drink is per cent fat free, has added fibre and calcium, is low GI and contains real fruit and fresh dairy products, with no artificial colours or flavours. The development of the MLX Super smoothie has come about as a result of a range of driving forces. Discuss what you believe could be two driving forces for the development of the MLX Super smoothie.

- Smoothies contain healthier bioactive compounds including carotenoids, essential oils, antioxidants, or flavors are widely incorporated into food products
- No single antioxidant can replace the combination of natural phytochemicals in fruits and vegetables to achieve the health benefits. Antioxidants or bioactive compounds are best acquired through whole-food consumption, not from dietary supplements.
- phytochemicals found in foods that are capable of modulating metabolic processes and resulting in the promotion of better health. They exhibit beneficial effects such as antioxidant activity, inhibition or induction of enzymes, inhibition of receptor activities, and induction and inhibition of gene expression (Correia, Borges, Medeiros, & Genovese, 2012)
- One of the chief reasons is that Smoothies are like “pre-chewed” living greens smoothies to gain access to bioavailable fruit. In this way, your body can focus its energy on cellular repair, detoxification and the metabolism
- “When you are eating a fruit or vegetable in its whole original form, your body is breaking everything down itself, Smoothies don’t involve chewing. Essentially, the blender does the chewing for you,

Each question carries (10 marks)