

Part A (50%):

1. Please draw the typical chemical structure of the following modified starches and please describe their objective and benefits to user. Does it belong to the food additive listed in 食品添加物使用範圍及限量暨規格標準 (TFDA)? (5% each, 20% in total)
 - (A) Acid treated starch
 - (B) Distarch phosphate
 - (C) Pregelatinized starch
 - (D) Hydroxypropyl starch
2. Currently the plant-based meat (also called textured vegetable protein, TVP) products, produced by extrusion technology, are gained lot attentions. Please answer the following questions. (10% in total)
 - (A) What are the raw materials usually used for TVP? (2%)
 - (B) What type of extruder can be used and why it can be used to make TVP? (4%)
 - (C) What chemical reactions may occur during processing and what are their effects on the quality of extrudate, for examples, color, flavor, nutrition etc.. (4%)
3. Please define the following rice products. Please briefly describe their processing process and nutritional benefits. (8% in total)
 - (A) Parboiled rice (4%)
 - (B) Germinated brown rice (4%)
4. Please draw their chemical structure and specify the type of glycosidic bond linkage (if exists). Which of the following are reducing sugars? (4% each, 12% in total)
 - (A) Isomaltose
 - (B) Sucrose
 - (C) Trehalose

Part B (50%):

1. What is the iodine value of a fat? According to the definition, please calculate the iodine value of triolein. [Atomic mass: I = 127; molecular weight: triolein = 884] (10%)
2. What is the basic chemical structure of anthocyanin molecules? And what happens to the color of anthocyanin when pH is changed? Please indicate your answer about the relationship between the changes in pHs, colors, and chemical structures. (15%)
3. For fully developing chocolate flavor, fresh cacao seeds need to be underwent fermentation processes. Describe in brief about the process of cacao beans fermentation. (10%)
4. Please draw the chemical structures of the following items. (5% each, 15% in total)
 - (A) Lysine
 - (B) Linoleic acid
 - (C) Butyric acid

試題隨卷繳回