**[Part A] 50%**

1. Please draw their Haworth formula and specify the type of glycosidic bond linking if it exists. Which of the following are reducing sugars? (**12%**, 3% each)
   (a) β-maltose
   (b) cellobiose
   (c) xylitol
   (d) trehalose

2. Describe the action of each of the following enzymes on a waxy corn starch paste, including their final products. (**8%**, 2% each)
   (a) α-amylase
   (b) glucoamylase (amyloglucosidase)
   (c) β-amylase
   (d) pullulanase

3. Why amylose content of starch or cereal flour could be determined by using iodine colorimetric method. What are the potential sources of error by using this method? (**6%**)

4. Please describe the principle of these three dehydration processes--spray drying, drum drying and freeze drying. What are the advantages and disadvantages of them when they are applied on the production of instant blueberry drink powder? (**12%**)

5. Please provide their chemical structures and describe the mechanisms of gelation (**12%**, 4% each)
   (a) gelatin
   (b) κ-carageenan
   (c) HM (high methoxyl) pectin

**[Part B] 50%**

1. Describe the classification of plant protein substances according to criteria of solubility thereof. (**10%**)

2. Some edible oils contain trace amounts of chlorophyll. Comment on that chlorophyll may affect the shelf life of oil products. (**10%**)

3. Describe how to determine the fatty acid composition of edible oil. (**10%**)

4. Describe the scheme of beer brewing process and explain the purpose and principle of each step. (**10%**)

5. Explain the terms below: (**10%**, 5% each)
(a) Thermal death time curve (b) Peroxidase in vegetables

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