

1. 何謂 probiotics? 寫出兩種屬於此類微生物學名(屬名與種名)。(6%)
2. (1) 比較鏡檢法(direct microscopic method)平板計數法(plate count method)在食品微生物計數上之優點及缺點。(6%)
(2) 又以平板技術法對固態及液態食物檢測所得之結果如何表示?(4%)
3. 請敘述一種水果之加工製品, 寫出從原料到成品之加工流程, 並說明各製備流程中可能受到微生物污染之情形及有效管制方法。(10%)
4. 從食品之觀點簡要說明下列微生物之重要性或意義 (12%)
 - A. *Saccharomyces cerevisiae*
 - B. *Aspergillus parasiticus*
 - C. Coliform bacteria
 - D. *Staphylococcus aureus*
5. 解釋下列名詞 (12%)
 - A. TA spoilage
 - B. Heterofermentative lactics
 - C. Water activity
 - D. Intermediate moisture foods
6. 請從微生物生理與生化角度, 完整描述 fermentation, 內容應包括碳源種類與選擇、受質與產物進出細胞機制、包括自糖酵解到不同發酵終產物的所有代謝路徑、過程中所參與的酵素、及氧化還原與質能平衡等。(35%)
7. 請說明下段摘要內容意涵: The aim of this study was to investigate the effect of adlay milk and adlay-soymilk fermented with *Lactobacillus plantarum* or *Lactobacillus paracasei* on lipid metabolism in hamsters fed with a cholesterol enriched diet. Adlay milk and fermented adlay milk with or without soymilk administered to hamsters significantly decreased ($p < 0.05$) serum cholesterol levels and ratio of low-density lipoprotein cholesterol to high-density lipoprotein cholesterol, when compared to a high-cholesterol diet group; there was also a significant ($p < 0.05$) increase in the level of fecal cholesterol and triglycerides. The group administered adlay milk fermented with *L. plantarum* or *L. paracasei* presented increased superoxide dismutase and total antioxidant status activity in the blood, thus relieving the levels of thinobarbituric acid reactive substances as compared to other treatment groups. Adlay milk and *Lactobacillus*-fermented adlay milk with or without a soymilk supplement, could be used as a potential cholesterol-lowering ingredient; it could also relieve hyperlipidemia-induced oxidative stress to improve hypercholesterolemia. (15%)