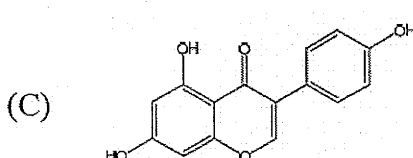
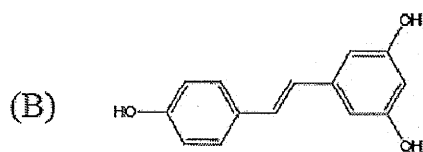
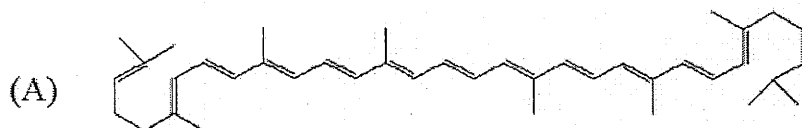


科目：食品化學

系所組：食品科學系

1. What is bound water (A_w) of a food component (4 points)? How can the bound water in potato chips be related to the lipid oxidation (4 points)?
2. What are the major proteins in wheat gluten (4 points)? How can they be related to the dough formation (4 points)?
3. Explain the following terms (9 points):
 - (a) hydrophilic interaction between water and sugar;
 - (b) types of instability in an O/W emulsion;
 - (c) formation of food foams
4. What is "induction time" (4 points)? How Fe^{+2} and EDTA affect its value (6 points)?
5. How to prevent trans fatty acid formation during hydrogenation of lipid (5 points)?
6. Why chlorophyll and anthocyanins stability are sensitive to pH change (10 points)?
7. Instant noodles contain about 70% starch. Please describe the changes of starch in instant noodles during the following processes: (1) cook in the hot water and then (2) cool at room temperature (14 points).
8. What are the major components in milk? (4 points) How dose pH affect the stability of these components? (7 points)
9. Many phytochemicals in foods have been demonstrated to possess various biological properties such as anticancer, cancer-protective effects, and anti-inflammatory activity. Three chemical structures of phytochemicals, genistein, lycopene, and resveratrol, are listed below. Please indicated the correct chemical structures of these compounds and give one dietary source of them, respectively. (12 points)



10. Amylases are the enzymes, which hydrolyze starch to different extents.
 - (1) Please compare the bond selectivity, endo- or exo- working type and releasing products between α -amylase and β -amylase. (6 points)
 - (2) Please give two food industrial applications of starch transformation with these two enzymes. (7 points)

※ 注意：1. 考生須在「彌封答案卷」上作答。

2. 本試題紙空白部份可當稿紙使用。

3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。