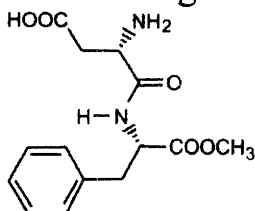


科目：食品化學

系所：食品科學系

This exam contains 9 questions, and is worth of a total of 100 points.

1. What are the major proteins in milk? Explain their characteristics and approximate percentage of total protein. (12 pts)
2. What is the simple model of enzyme reactions? (9 pts)
3. Explain the structure of pectins and carrageenans and their gelation mechanism. (12 pts)
4. What is water activity (a_w)? How can a_w be related to the food instability? Give at least three examples to explain your points of view (9 pts)
5. List all the possible browning reactions existed in fruits, like apples or orange? Give at least two methods to reduce the browning of fruits (9 pts)
6. Explain the following terms:
 - A) depletion interaction of non-adsorbing hydrophilic polymers in colloidal particles (4 pts);
 - B) food gels (4 pts);
 - C) storage proteins in plants (4 pts);
 - D) chelate effects (4 pts).
7. What is the mechanism to explain a synergistic effect from mixed antioxidants (6 pts)? How to calculate the antioxidant factor (5 pts)?
8. How pH values affect the stability of chlorophyll and lycopene (6 pts)? Why cooking fresh beef will convert surface color from red to gray/brown, but ham remains the same pink color after heating (6 pts)
9. Does the following compound taste sweet (10 pts)



※注意：1. 考生須在「彌封答案卷」上作答。

2. 本試題紙空白部分可當稿紙使用。

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。