

本試題是否可以使用計算機：可使用，不可使用（請命題老師勾選）

簡答下列問題，每題十分。所有考題務必在答案卷上作答。

1. Compare the following three tetrapeptides; which one will have the greatest light absorbance at 280 nm? Which one will yield DNP-tyrosine when reacted with 1-fluoro-2,4-dinitrobenzene and hydrolyzed in acid?

A: Tyr-Lys-Met-Ala
B: Asp-Trp-Tyr-Ala
C: Gly-Pro-Arg-Ala
2. What is the function of molecular chaperones?
3. Write the Michaelis-Menten equation and define each term in it.
4. Why is cyanide (CN^-) toxic to aerobic organisms?
5. Starch and cellulose are both polymers of glucose. Describe their structural difference and their biological roles.
6. Why does the t_m for a double-stranded DNA depend upon its nucleotide composition?
7. List the problems that might arise in producing a mammalian protein in *E. coli* using recombinant DNA technology.
8. What are the differences between integral and peripheral membrane proteins?
9. Describe the metabolic functions of (a) pentose phosphate pathway; (b) TCA cycle.
10. Show the pathway from glucose to glycogen including the enzymes involved in the reactions.