

生物化學
UNREGISTERED

第一題：解釋下列名詞 (25%，每個 5 分) **Created by Unregistered Version**

1. 等電點 (isoelectric point; PI)
2. Edman degradation
3. 酵素動力學中的名詞: (a) K_m (b) V_{max}
4. 同功酶 (isoenzyme; isozyme)

第二題：填入糖解作用(glycolysis)共十個步驟中所需之酵素及產生之產物 (共 10 個答案，每個 2.5 分)

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Step 1: glucose + ATP $\xrightarrow{\text{enzyme 1 ?}}$ glucose-6-phosphate + ADP + H^+ **Created by Unregistered Version**

Step 2: glucose-6-phosphate $\xrightleftharpoons{\text{enzyme 2 ?}}$ fructose-6-phosphate

Step 3: fructose-6-phosphate + ATP $\xrightarrow{\text{enzyme 3 ?}}$ fructose 1,6-diphosphate + ADP + H^+

Step 4: fructose 1,6-diphosphate $\xrightleftharpoons{\text{enzyme 4 ?}}$ dihydroxyacetone phosphate + glyceraldehyde 3-phosphate

Step 5: dihydroxyacetone phosphate $\xrightleftharpoons{\text{enzyme 5 ?}}$ glyceraldehyde 3-phosphate

Step 6: glyceraldehyde 3-phosphate + NAD + P_i $\xrightleftharpoons{\text{enzyme 6 ?}}$ 1,3-diphosphoglycerate + NADH + H^+

Step 7: 1,3-diphosphoglycerate + ADP $\xrightleftharpoons{\hspace{1cm}}$ 3-phosphoglycerate + product 1?

Step 8: 3-phosphoglycerate $\xrightleftharpoons{\hspace{1cm}}$ 2-phosphoglycerate

Step 9 : 2-phosphoglycerate $\xrightleftharpoons{\text{enzyme 7 ?}}$ phosphoenolpyruvate + H_2O

Step 10: phosphoenolpyruvate + ADP + H^+ $\xrightarrow{\text{enzyme 8 ?}}$ product 2 ? + ATP

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第三題：解釋名詞 (50 分) **Created by Unregistered Version**

- (1)反 密 碼 子 (anticodon) (6 分)
- (2)伴護蛋白質 (chaperone) (6 分)
- (3)基因重組 (genetic recombination) (6 分)
- (4)核體 (nucleosome) (6 分)
- (5)核酸酵素 (ribozyme) (6 分)
- (6)起始密碼 (start codon)與終止密碼子(stop codons) (6 分)
- (7)Sodium dodecylsulfate polyacrylamide gel electrophoresis (SDS-PAGE) (7 分)
- (8)鋅手指 (Zinc finger) (7 分)