

※ 考生請注意：本試題不可使用計算機。 請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Please describe the Dengue fever and Dengue hemorrhagic (出血性的) fever caused a big damage in the southern Taiwan. (10%)
2. Please (1) explain what the essential amino acid is? (5%)
(2) draw the structures of shown as followed: (10%)
 - (a) tryptophan (色胺酸);
 - (b) valine (纈胺酸);
 - (c) threonine (蘇胺酸);
 - (d) lysine (離胺酸);
 - (e) phenylalanine (苯丙胺酸).
3. Enzyme-linked immunosorbent assay (ELISA) has been used as a point of care test (POCT). Three types of them including direct ELISA, sandwich ELISA, competitive ELISA, had been developed in the last decades. Please express the detection theory of them and their merits and drawbacks in detail. (15%)
4. Please describe how cells obtain energy from polysaccharides in detail? (10%)
5. Please describe the mechanism of antibody formation in detail. (10%)
6. Please the function of hemoglobin and myoglobin in the circulation system of our body. (10%)
7. Please express what the Beer-Lamber Law and its application in analytical field are? (10%)
8. We know that the binding pairs of A-T and G-C will be formed spontaneously, please write the schemes of their nucleic molecular structure, respectively. (10%)
9. NAD(H) and FAD(H) are two important coenzymes of dehydrogenase functionalized in the TCA cycle, please give an example to describe their reaction and its application in diagnostics. (10%)