

KATHMANDU UNIVERSITY
End Semester Examination [C]
July, 2017

JUL 13 2017

Level : B. Tech.
Year : II
Time : 2 hrs. 30 mins.

Course : BIOT 203
Semester : I
F. M. : 55

SECTION "B"

Attempt *ALL* questions. Support your answer with figures, equations, flowcharts and structures whenever applicable.

1. On the basis of proteins and amino acids, answer the following questions:
 - a. How are peptide bonds synthesized? How do they get their spatial conformation? [2]
 - b. What is Aspartame? Write down its structure. [1]
2. On the basis of enzymes and enzyme kinetics, answer the following questions:
 - a. Enzymatic reactions can be explained by mathematical formulation via Michaelis Menten kinetics. How do you deduce it? [4]
 - b. Why is double reciprocal plot necessary? Deduce the expression fro it. [2]
 - c. What are the factors that affect enzyme kinetics? [3]
3. On the basis of carbohydrates and carbohydrate metabolism, answer the following questions.
 - a. A molecule of glucose is catabolized to give carbon-di-oxide and water. Write down all the pathways or reactions involved. [7]
 - b. It is said that glycolysis and gluconeogenesis are regulated reciprocally. Explain! [3]
 - c. How is blood glucose level regulated after and in between meals? [3]
4. On the basis of electron transport chain, answer the following questions:
 - a. When electron carriers from cytosol gets shuttled to mitochondria, how may ATPs are produced? Explain! [3]
 - b. How does this generation of ATP take place? Explain! [4]
5. On the basis of lipids and lipid metabolism, answer the following questions:
 - a. How do dietary fats reach the mitochondria? [4]
 - b. How are these fatty acids then oxidized? [2]
 - c. How is cholesterol biosynthesis regulated? [3]
6. On the basis of protein metabolism, answer the following questions:
 - a. On a physiological perspective, how are proteins digested and up taken by small intestine? [3]
 - b. What is urea cycle? [3]
7. On the basis of nucleotide and nucleotide metabolism, answer the following questions:
 - a. Where does the hydrogen in the active site of ribonucleotide reductase come from? How does the enzyme works? Explain its working mechanism. [2+2]
 - b. Why is allopurinol given to treat gout? [2]
8. On the basis of amino acid synthesis OR vitamins and hormones, answer the following questions:

How is Glycine synthesized? Why is arginine not synthesized from glutamate phosphate? [2]

OR

How does non- steroid hormones act in the body?

[2]

