

**BACHELOR OF PHARMACY HONOURS  
FMU3300 – BIOCHEMISTRY- LEVEL 03  
FINAL EXAMINATION  
DURATION: THREE (03) HOURS**

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**DATE: 11<sup>TH</sup> AUGUST 2021**

**TIME: 9.30 A.M. – 12.30 P.M.**

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**Part B (20 Marks)**

01. Myristic acid -  $\text{CH}_3(\text{CH}_2\text{CH}_2)_{12}\text{COOH}$  undergoes  $\beta$  oxidation.

1.1 How many acetyl CoA molecules will be produced during the above process?  
(02 marks)

.....

1.2 How are long chain fatty acids transferred across the mitochondrial membrane?  
(02 marks)

.....

1.3 Why myristic acid is amphipathic in character?  
(02 marks)

.....  
.....

1.4 Name the given fatty acid according to omega ( $\omega$ ) system and delta ( $\Delta$ ) system.  
 $\text{CH}_3-(\text{CH}_2)_2-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}=\text{CH}-(\text{CH}_2)_7-\text{COOH}$  (04 marks)

( $\omega$ ) system: .....

( $\Delta$ ) system: .....



02.

2.1 Write three (03) types of enzyme inhibitors.

(03 marks)

- I.....
- II.....
- III.....

2.2 List four (04) factors that affect the rate of enzyme activity.

(04 marks)

- I.....
- II.....
- III.....
- IV.....

2.3 What are ligases?

(03 marks)

- .....
- .....
- .....
- .....

**Part C (60 Marks)**

01. Glycolytic pathway is one of the body's important metabolic pathways.

1.1 Using a diagram explain the entry of fructose to glycolytic pathway. (08 marks)

1.2 Name the energy sources produced in the glycolytic pathway. (02 marks)

1.3 Briefly explain why lactate is formed in anaerobic glycolysis. (05 marks)

02.

2.1 List four (04) levels of organization of proteins. (02 marks)

2.2 Name two (02) examples for structural proteins. (02 marks)

2.3 Explain what is meant by protein denaturation. (05 marks)

2.4 Using a graph, draw the oxygen affinity curves for both hemoglobin and myoglobin. (06 marks)

03. Michaelis-Menton equation is given below.

$$V = \frac{V_m[S]}{K_m + [S]}$$

3.1 Name each term in the equation. (04 marks)

3.2 Using Michaelis-Menton equation, derive an equation to make the Lineweaver-Burk plot. (06 marks)

3.3 Plot the Lineweaver-Burk plot using the equation derived in 3.2. (05 marks)

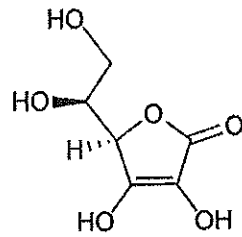
04.

4.1 What are vitamins? (03 marks)

4.2 What are vitamers? (03 marks)

4.3 Name the vitamers of vitamin A. (03 marks)

4.4 Explain the antioxidant action of vitamin C using a chemical reaction. (06 marks)



Vitamin C

