OLABISI ONABANJO UNIVERSITY

FACULTY OF BASIC MEDICAL SCIENCES

DEPARTMENT OF BIOCHEMISTRY

2016/2017 RAIN SEMESTER EXAMINATION

Course Code: BCH 302 Course Title: Enzymology Time Allowed: 2hr 30mins

Instruction: Answer any five questions **Date: 17/07/2017**

SECTION A

1. (a) Explain the mechanism of enzyme catalysis

   (b) What is the advantage of the induced fit model over the lock and key model?

2.

Arachidonic acid (nm)	Rate of formation ofPGG2(nm/mM)	Rate of formation of PGG2 with 10mg/ml ibuprofen
0.5	23.5	16.67
1.0	32.2	25.25
1.5	36.9	30.49
2.5	41.8	37.04
3.5	44.0	38.91

(a). The kinetic data given above was for the reaction catalyzed by prostaglandin endoperoxide synthase. Focusing on the first two columns, determine the Km and Vmax of the enzyme.

(b). Ibuprofen is an inhibitor of prostaglandin endoperoxide synthase. By inhibiting the synthesis of prostaglandin, ibuprofen reduces inflammation and pain. Using the data in the table above, determine the type of inhibition that ibuprofen exerts on prostaglandin endoperoxide synthase.

SECTION B

3. (a). What are regulatory enzymes?

(b) Differentiate between the following pairs

i. Catalytic site and allosteric site

ii. Allosteric enzymes and covalently regulated enzymes

iii Positive modulator and negative modulators

4. (a). Write concise note on zymogens giving at least three examples