University of Al-Qadisyia
Faculty of Biotechnology
Dept.of Agricultural& Medical Biotechnology

Examination: Biochemistry
Time: Two hours
Stage: 2ed years
Date :- 1 /6/ 2017

الدور الاول

Final semester examination of second semester 2016-2017

Q1) Draw the chemical structure of the following lipid compounds: 8 marks
a-Arachidonic acid b- Phosphatidyl inositol

Q2) Choose the correct answer: (Answer five only) 10 marks

1-According to Koshland's Induced-fit Theory:
a- the active site of enzyme possesses a conformation which is not complementary to the structure of the substrate.
b-the essential functional groups on the active site of the free enzyme are not in their optimal positions for promoting catalysis.
c-the active site of enzyme possesses a unique conformation which is complementary to the structure of the substrate.
d- the essential functional groups on the active site of the free enzyme are in their optimal positions for promoting catalysis.

2-Waxes are esters of fatty acids and alcohols other than:
a-lanolin b-sphingosine
c-glycerol d-sterol

3-In the Michaelis-Menten equation when [S] » K_M; then:
a-The reaction is zero order b-The reaction at half maximum velocity
c-The reaction is first order d-The reaction is mixed order

4-A nerve gas sarin it's a kind of:
a- reversible inhibitors which is tightly bind to enzyme b-irreversible inhibitors which is not tightly bind to enzyme
c-irreversible inhibitors which covalently bind to enzyme d-reversible inhibitors which is not tightly bind to enzyme

5-Fats contain hydrophilic colloidal particles such as proteins, carbohydrates and phospholipids which act as:
a-stabilizing agents b-supporting agents
c-emulsion agents d-reducing agents

6- Integral membrane proteins span the bilayer and thus have:
a- extracellular domains b-both intra-and extracellular domains
c-intracellular domains d-None of these

Q3) Show one of the following: 7 marks
1- The mathematical expression of Michaelis-Menten kinetics of enzyme activity, define all the parameters of equation.
2- The mathematical expression of Lineweaver-Burke kinetics of enzyme activity, define all the parameters of equation.

Q4) Complete the following phrases: 15 marks
1- The hydrolysis of triacylglycerol to mono and diacylglycerol is hastened by the presence of--------- and -------- and-------- present in fats and air.
2- A coenzyme or metal ion that is covalently bound to the enzyme protein is called ---------. While a complete catalytically active enzyme together with its coenzyme and/ or metal ions is called ---------.
3- Rancidity reactions may be due to hydrolysis of ester bonds which is called --------- or due to oxidation of unsaturated fatty acids which is called ----------.
4- Enzymes which exist in multiple forms within a single species of organism or even in a single cell are called --------- or ----------.
5- A non-competitive inhibitor of an enzyme catalyzed reaction causes ---------- in the apparent K_m and a decrease in apparent---------.

Dr.saja Al-Taweel

Department head