



# كيمياء الانزيمات

2016-2015

اسئلة مراجعة المحاضرة  
الاولى + الثانية

## أجب عن الأسئلة الآتية:-

١- عرف الأنزيمات؟ مستعرضاً خواص الأنزيمات

٢- الفيتامينات أو مشتقاتها التي تعمل كقوآن انزيمات ماهى العلاقة الموجودة بين الفيتامينات وقرآن الأنزيمات.

٣- كيف يمكنك تصنيف الأنزيمات؟

٤- ماذا يقصد بالمصطلحات التالية:

### 1. Enzyme cofactors

.....  
.....  
.....

### 2. Multienzyme Complexes

.....  
.....  
.....

### 3. Hydrolase :

.....  
.....

## إملاً الفراغات التالية Fill in the blanks

1. Oxidoreductase enzymes include: 1..... 2. .... ٣.....

2. Transferase enzymes include: 1.....2..... 3. ....

3. Hydrolase enzymes include: 1..... 2. .... 3.....

### 5-Choose (A) for true and (B) For false of the following

1. Pepsin acts on peptide bonds between amino groups of aromatic amino acid and carboxylic group of another amino acid (A)

2. Enzymes are usually specific in action (A)

٣. In Absolute specificity the enzyme acts at different rates on one type of bond in Compounds chemically related (B)

4. Enzymes may be considered to lower energy barriers for chemical reactions (A)

5. Increase in the substrate concentration will lead to decrease in enzyme activity

6. Increase in enzyme concentration increase the rate of reaction (A)

7. Some enzymes containing SH groups requires Minerals to be activated (B)

8. In Competitive inhibition Vmax of the enzyme is not decreased (A)

9. Inducers are substances which inhibit gene expression (B)

10. Isoenzyme is oligomer enzyme (A)

**6-Choose the correct answer of the following:**

1. Which statement describes enzymes?

- A Enzymes are organic molecules.
- B Enzymes are catalysts.
- C Enzymes lower activation energy.
- D Enzymes are proteins.
- E All of the above describe enzymes.

2. Which of the following acts as a barrier that prevents chemical reactions from occurring rapidly?

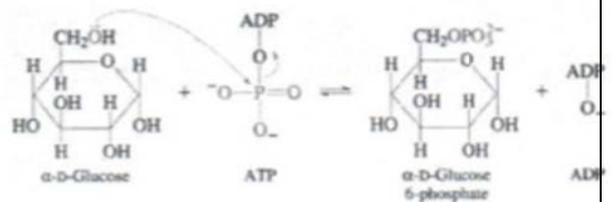
- A Substrate
- B Metabolic pathway
- C Competitive inhibitor
- D Activation energy
- E Active site

3. This part of an enzyme combines with the substrate.

- A Allosteric site
- B Active site
- C Inhibitor
- D Metabolic pathway
- E None of the above

The reaction to the right is an example of a(n) \_\_\_\_\_ reaction:

- a. Hydrolysis
- b. Oxidation-Reduction
- c. Isomerization
- d. Bond formation using energy of ATP
- e) Group transfer



The reaction to the right is an example of a(n) \_\_\_\_\_ reaction:

- a. Hydrolysis
- b. Oxidation-Reduction
- c. Isomerization
- d. Bond formation using energy of ATP
- e. Group transfer



**6. The catalytic activity of enzymes can be lost in case of:**

- (a) enzyme is denatured (b) enzyme is dissociated  
(c) Enzyme is broken down (d) all

**7 ..... enzymes catalyzed transfer of electrons.**

- (a) Transferases (b) Oxidoreductases (c) Hydrolases (d) Isomerases

**8. Enzymes catalyzed group transfer reactions are called**

- (a) Transferases (b) Oxidoreductases (c) Hydrolases (d) Isomerases

**9. .... enzymes catalyzed hydrolysis reactions.**

- (a) Transferases (b) Oxidoreductases (c) Hydrolases (d) Isomerizes

**10. Enzymes catalyzed transfer of groups within molecules to yield isomeric forms are called**

- (a) Transferases (b) Oxidoreductases (c) Hydrolases (d) Isomerases

**11. The coenzyme involved in a transaminase reaction is:**

- A) biotin phosphate. B) lipoic acid.  
C) nicotinamide adenine dinucleotide phosphate (NADP+).  
D) pyridoxal phosphate (PLP).  
E) thiamine pyrophosphate (TPP).

**12. Enzyme X exhibits maximum activity at pH = 6.9. X shows a fairly sharp decrease in its activity when the pH goes much lower than 6.4. One likely interpretation of this pH activity is that:**

- A) a Glu residue on the enzyme is involved in the reaction.  
B) a His residue on the enzyme is involved in the reaction.  
C) the enzyme has a metallic cofactor.  
D) the enzyme is found in gastric secretions

**13. Both water and glucose share an —OH that can serve as a substrate for a reaction with the terminal phosphate of ATP catalyzed by hexokinase. Glucose, however, is about a million times more reactive as a substrate than water. The best explanation is that:**

A) Glucose has more —OH groups per molecule than does water.

**B) The larger glucose binds better to the enzyme; it induces a conformational change in hexokinase that brings active-site amino acids into position for catalysis.**

C) The —OH group of water is attached to an inhibitory H atom, while the glucose —OH group is attached to C.

D) Water and the second substrate, ATP, compete for the active site resulting in a competitive inhibition of the enzyme.

E) Water normally will not reach the active site because it is hydrophobic

**14. The coenzyme involved in a transaminase reaction is:**

A) biotin phosphate.      B) lipoic acid.

C) nicotinamide adenine dinucleotide phosphate (NADP+).

**D) pyridoxal phosphate (PLP).**      E) thiamine pyrophosphate (TPP).

**15. Which of the statements regarding enzymes is false?**

Enzymes are proteins that function as catalysts.

Enzymes are specific.

**Enzymes provide activation energy for reactions.**

Enzyme activity can be regulated.

Enzymes may be used many times for a specific reaction.

**16. Concerning Isoenzymes**

a- Have quaternary structure and the individual subunits in each isoenzyme are different from the others

**b- They act on the different substrate and will give the same product**

c- They have different affinity to the substrate.

d- They are present in different tissues.

**17. Enzyme acts on a special type of bond at specific site and attached to specific groups**

**a- Group Specificity**      b- Absolute Specificity

c- Relative Specificity      d- Optical Specificity

**18. D-amino acid Oxidase represents**

a- Group Specificity      b- Absolute Specificity

c- Relative Specificity      **d- Optical Specificity**

**19. Pancreatic Lipase represents**

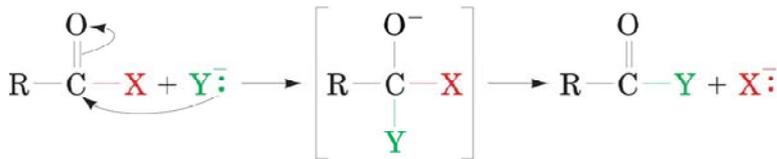
- a- Group Specificity      b- Absolute Specificity  
c- Relative Specificity      d- Optical Specificity

**20. An enzyme that uses ATP to phosphorylate another molecule is called a**

Dehydrogenase.      **Kinase.**

Phosphorylase.

Nucleotidase



21. The  
the

**Tetrahedral  
intermediate**

reaction below belongs to  
following type of  
biochemical reaction

- a) Elimination      b) Oxidation and reduction  
c) Reactions that make and brake carbon bonds  
d) **Group-transfer reactions**      e) Additions

**22. One of the following can be considered as a co Enzyme for transfer of groups other than H except:**

- a- Biotin      b- ATP      **c- FAD**      d- Folic acid

**23. One of the following is considered a feature of Enzymes except .....**

- a- Globular Proteins      b- Undergo Denaturation  
c- Simple Proteins      **d- Non-Specific**

**24 .Enzyme acts on a special type of bond at specific site and attached to specific groups**

- a- Group Specificity**      b- Absolute Specificity  
c- Relative Specificity      d- Optical Specificity

29. D-amino acid Oxidase represents .....

- a- Group Specificity   b- Absolute Specificity  
c- Relative Specificity   **d- Optical Specificity**

26. Pancreatic Lipase represents .....

- a- Group Specificity   b- Absolute Specificity  
**c- Relative Specificity**   d- Optical Specificity

27. Pepsin is activated through .....

- a- Removal of inhibitory peptide**   b- Reducing agent  
c- Minerals   d- Allosteric activators

28. All of the following are included in Transferase class of enzymes except .....

- a- Transaminase   **b- Hydrolase**  
c- Transglycosyl   d- None of the above

29. Carboxylase is an example of .....

- a- Transferase   **b- Esterases**   c- Oxidases   d- Ligases

30. An enzyme that uses NADH to reduce another molecule is called a

- Dehydrogenase.**   Kinase.   Pseudo-oxidase.   Reductase

31. Inactive precursors of some enzymes that are activated through hydrolysis reactions are called:

- a) Allosteric enzymes   b) Apo enzymes   c) holoenzymes  
d) Prosthetic groups   **e) Zymogens**

32. You are given a list of E.C. numbers by your independent study supervisor, but from looking at it you feel that one of the enzymes does not exist. Which one?

- a) 3.4.2.1   b) 4.4.5.6   c) 1.1.1.1   **d) 8.3.2.4**   e) 5.17.4.3

33. What classes of reactions do Lyases catalyze?

- a) Bond formation coupled with ATP hydrolysis   b) Isomerizations  
**c) Group elimination to form double bonds**   d) Transfer of functional groups

34. Enzymes which catalyze transfer of functional groups (G) other than hydrogen between a pair of substrates

a- **Transferase**    b- Oxygenases    c- Dehydrogenases    d- Hydrolases

**35. All of the following are included in Transferase class of enzymes except**

a- Transaminase    **b- Hydrolase**    c- Transglycosyl    d- None of the above

**36. Enzymes which catalyze transfer of functional groups (G) other than hydrogen between a pair of substrates**

**A, Transferase**    b- Oxygenases    c- Dehydrogenases    d- Hydrolases

**37. Enzymes link two molecules using energy from ATP**

a- Lyases    b- Hydrolase    **c- Ligase**    d- Redox

**38. Carboxylase is an example of**

a- Transferees    b- Estruses    c- Oxidases    **d- Ligases**

**39. Enzymes utilizing H<sub>2</sub>O<sub>2</sub> as substrate**

a- Oxidases    **b- peroxidases**    c- Dehydrogenases    d- Oxygenases

**40. A certain enzyme will hydrolyze egg white but not starch. Which statement best explains this observation?**

- (A) Starch molecules are too large to be hydrolyzed
- (B) Enzyme molecules are specific in their actions**
- (C) Egg white acts as a coenzyme for hydrolysis
- (D) Starch is composed of amino acids.

**41. Which of the following enzymes would digest a fat?**

(A) Sucrose    (B) protease    (C) Ligase    **(D) lipase**

**42. Isoenzymes are:**

- a. product of closely related gene.
- b. physically separate forms of same catalytic activity .**
- c. present in different organelle of same cell.
- d. different tissues produce same protomers of isoenzyme.



