	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	Examination for 4 th Year Biochemistry Students			
	COURSE TITLE:	Neurochemistry		
DATE: 25-12- 2017	COURSE CODE: BC4111	TERM: FIRST TERM	MARKS: 100	TIME ALLOWED: 2 HOURS

I. Discuss the following questions:

1. Explain how an action potential triggers release of neurotransmitters and indicating the stages of neurotransmitters at the synapses.
2. Show by diagram neuron structure and classification of neurons and neurotransmitters.
3. Biosynthesis and clearance of acetylcholine.
4. Relationship between glutamate, GABA and energy production in brain then indicate the GABA receptors interactions.
5. Differences between agonists, antagonists and inverse agonists.
6. Biosynthesis and degradation of catecholamines.
7. Dopamine and adrenergic receptors explaining dopaminergic agonists and antagonists.
8. Tabulate the major neurotransmitters of C.N.S and their receptors and effectors.

II. Clarify each of the following questions:

1. Chemical synapse.
2. Biosynthesis, degradation, clearance, function and dysfunction of 5HT.
3. Functions of glial cells.
4. Types of inhibition in the brain.
5. Functions and dysfunctions of dopamine and noradrenaline.
6. Excitatory amino acids act as neurotransmitters via binding three types of receptors which affected by agonists and antagonists, explain.
7. Explain the two main forms of information transduction showing types of receptors and receptors parts.
8. Compare between the excitatory and inhibitory neurotransmitters functions and dysfunctions.

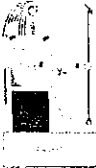
III. Complete the following sentences:

1. Threshold action potential can be described as.....
2. Types of chemical transmission.....,and.....
3. Autoreceptors are.....and neuromodulators are.....
4. Myasthenia gravis is a neuropsychiatric diseases treated by using antagonist to.....which called.....drugs.
5. Posttranslational modifications affectsand.....of neurotransmitters and also.....of drugs.
6. B_{max} is.....and K_d

Best Wishes

Dr. Karim Samy

وحدة ضمان الجودة
 كلية العلوم - جامعة طنطا
 QUALITY ASSURANCE UNIT
 FACULTY OF SCIENCE - Tanta

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	Examination for 4 th Year Biochemistry Students			
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Tanta University Faculty of Science Chemistry Department	Final Exam Chemistry of Petroleum		
	Level Four	Course Code: CH 4145	
		Total Assessment Marks: 50	
Double Major	Time allowed : 2 Hours	Date: 30/12/2017	

Answer the following questions:

1) Illustrate the inorganic theory which discusses the genesis of petroleum.

(10Marks)

2) Write short notes on the following: (10 Marks)

i- Pour point.

ii- sulfur compounds in petroleum.

iii- Kerosene zone in petroleum.

iv- Naphthenes or Cycloparaffins.

v- Aniline point.

3) Define each of the following with examples: (20 Marks)

i- Catalytic Cracking.

ii- Alkylation.

iii- Classification of Crude Oils

iv- Petrochemical from H_2S .

4) Show with equations how the following compounds could be prepared from petroleum and show its uses. (10 Marks)

1- Carbon black.

2- Adipic acid.

3- Teflon.

4- Ethylene glycol.

5- Hydrazine hydrate.

6- Acrylic acid.

7- Methyl methacrylate.

8- Ammonium nitrate fertilizer

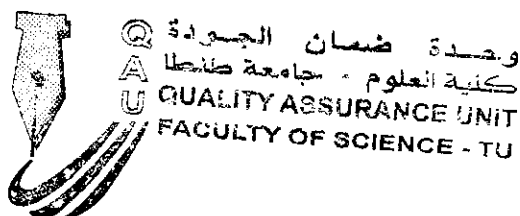
9- Phenolic Resins.


10- Nylon 6, 6.

Good Luck

Prof. Abd-elbaset shokr

Assistant.Prof. Seham Abd-elatif



	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (DOUBLE MAJORS)		
	COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4155)	TIME ALLOWED:
DATE: JANUARY 01, 2018	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	2 HOURS

Question 1:

1) Compare between each pair of the followings: (9 Marks)

- a) Properties of diamond and graphite.
- b) Commodity and fine chemicals (with examples).
- c) SMR and POX.

2) Show with diagram only the extraction of sulfur. (2 Marks)

3) Write the uses of hypochlorous acid. (2 Marks)

Question 2:

1) Show only by equations: (8 Marks)

- a) Synthesis of diamond.
- b) Hydrogenation and oxidation steps for the manufacture of hydrogen peroxide.
- c) Ostwald process.
- d) Urea process for the synthesis of hydrazine.

2) Give reasons for the followings: (4 Marks)

- a) Addition of carbon and silica during the manufacture of white phosphorous.
- b) Addition of superheated water during the extraction of sulfur.

Question 3:

1) Give a brief account on the most common types of dyes with chemical structures of each kind. (4 Marks)

2) Compare in a short notes between: (4 Marks)


- a) Edible and inedible fats
- b) Saponification value and iodine number

Please turn over



Examiners: Prof. Ahmed Elbarbary
Dr. Mohamed Sadek

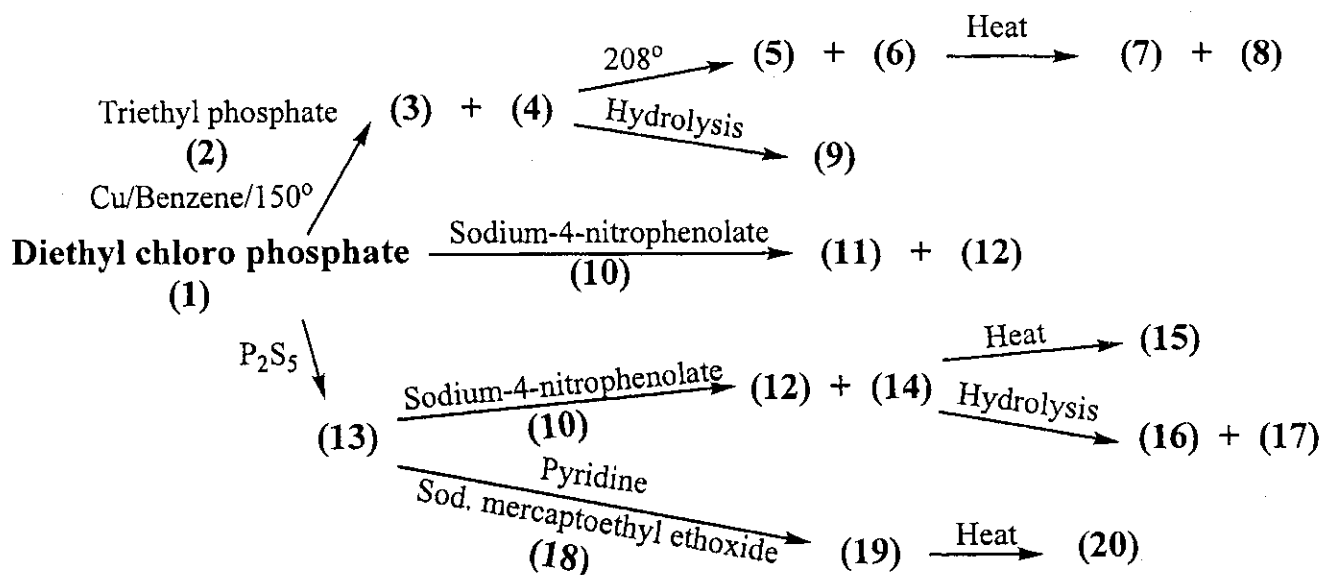
Prof. Nadia Elwakeel
Dr. Wael A. Amer

	Tanta University, Faculty of Science, Chemistry Department		
	Examination for Fourth Level (Credit Hours) Students		
Course Title	Chemistry of Pesticides	Course Code: CH4119	
Date:	3 January 2018	Total Assessment Marks: 50	Time Allowed: 2 hrs

I) Discuss each of the followings (10 Marks):

- a) Metabolism of carbofuran.
- b) Merits and demerits of organophosphorous compounds as pesticides.

II) Complete the following scheme and name all the products (10 Marks):



III) Write one method to prepare the following pesticides (10 Marks):

- a) Nornicotin
- b) Ethylchlorobenzilate
- c) Chlordan
- d) Bis-(p-chlorophenoxy) methane
- e) Sodium fluosilicate

IV) Complete the following chemical equations and name all the products (10 Marks):

- a) 4-Chlorobenzaldehyde + Nitroethane \rightarrow A $\xrightarrow{\text{---Chlorobenzene---}}$ B
- b) Trichloro acetaldehyde + Chlorobenzene $\xrightarrow{\text{---c. H}_2\text{SO}_4\text{---}}$ C $\xrightarrow{\text{---Drastic nitration---}}$ D
- c) DDT $\xrightarrow{\text{---alc.KOH---}}$ E $\xrightarrow{\text{---Hydrolysis---}}$ F
- d) DDT $\xrightarrow{\text{---Zn dust/EtOH---}}$ G $\xrightarrow{\text{---alc.KOH/300}^\circ\text{---}}$ H
- e) Carbaryl $\xrightarrow{\text{---epoxidation---}}$ I $\xrightarrow{\text{---hydrolysis---}}$ J

V) Carryout the following conversions (10 Marks):

- a) DDT to 1,1-bis(4-chlorophenyl)ethene
- b) Acetylene to aldrin
- c) Mercuric bromide to alkyl mercuric hydroxide
- d) Ethanol to methoxychlor
- e) Carbon disulfide to ferric dialkyl dithiocarbamate


..... With Best Wishes,.....

Dr. Mohamed Azaam

Dr. Atif El-Gharably

Prof. Dr. Ahmed El-Barbary

13
B

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR LEVEL FOUR STUDENTS (SEMSTER 1) OF CHEMISTRY/BIOCHEMISTRY			
	COURSE TITLE:	CLINICAL BIOCHEMISTRY		COURSE CODE: BC4105
	DATE:	06/01/2018	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50

I. Answer the following questions: 20 marks

1. What is the principle of hippuric acid test? Why it is used as LFT?
2. In a patient serum creatinine has been found to be higher than normal but blood urea is within the normal range, what is the likely possibility?
3. What is the difference between creatine and creatinine?
4. In a patient with normal serum creatinine level, blood urea has found to be much higher than normal, what could be the possibility?
5. Compare between the electrograms of serum proteins in chronic hepatitis and in Multiple myeloma.

II. Write short notes on each of the following: 12 marks

1. Newer atherosclerosis risk factors.
2. Serum markers of myocardial infarction (MI).
3. Non-respiratory functions of the lung.

III. Complete each of the following: 6 marks

1. The plasma concentration at which a particular substance begins to appear in the urine is the-----
2. -----, ----- and ----- are three forms of coronary artery disease (CAD).
3. ----- is an important biomarker with an established role in the diagnosis of congestive heart failure (CHF).

IV. Choose the correct answer 12 marks

1. An 8-year-old boy was brought to the dermatologist as he had developed vesicles and bullae on his face and arms that appeared after a week-long football practice in sun. His father has a similar condition. A diagnosis of porphyria cutanea tarda was confirmed by finding elevated levels of porphyrins in his serum. His disease is due to a deficiency of which of the following enzymes?
 - a. ALA dehydratase
 - b. Ferrochelataase
 - c. Uroporphyrinogen decarboxylase
 - d. PBG deaminase

2. A patient presents with dull right sided abdominal pain, fever from 7 days, loss of appetite, pale stool and jaundice. Blood biochemistry reveals, mixed hyperbilirubinemia, high SGPT but near normal alkaline phosphatase levels. What is the cause of jaundice?

- a. Viral hepatitis
- b. Post hepatic jaundice
- c. Hemolytic jaundice
- d. None of the above

3. Which serum enzyme elevation is most diagnostic in obstructive jaundice?

- a. ALT
- b. AST
- c. LDH
- d. ALP


4. Urine analysis of a patient reveals the presence of bilirubin and urobilinogen, which serum enzyme is expected to be elevated much higher than normal?

- a. ALT
- b. AST
- c. 5'nucleotidase
- d. ALP

Good Luck

EXAMINERS	PROF. DR. MOHAMMED HUSSEIN
	DR. THORIA A. AZIZ

10

	Tanta UNIVERSITY			
	FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION for senior (fourth Year) students OF BIOCHEMISTRY			
COURSE TITLE:	Ezymology [2]		COURSE CODE BC1 <u>4113</u>	
DATE: 14-1	JANUARY 2018	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

1- A) Describe the complete mechanism for the reaction that results in the Lactate dehydrogenase catalyzed (The active site of the enzyme include histidine 195, Arginin171).

b- Define the following:

- i Specific activity
- ii Non productive binding model
- iii Proximity
- iv Biosensors

c- The role of zinc in carboxy peptidase A

d- How to identify the 2 imidazole of histidine active site (12, 119) of ribonuclease enzymes. (20 marks)

2-Write an account on each of the following :


- a) Properties allosteric enzyme
- b) Properties of support materials in immobilized enzyme
- c) Substrate Specificity of acetycholine esterase reflect the active site
- d) Comment why hexokinase cannot phosphorylated glycerol or simple alcohol.
(Glucose + ATP Hexokinase ADP + glucose 6 phosphate)
(15 marks)

3- Cell-free extract of E. coli contains 2.4 mg protein per milliliter. Fifty milliliter of the extract was fractionated by 50 % saturated ammonium sulfate precipitation. The fraction precipitated was dissolved in a total volume 8 ml and dialyzed. The solution after dialysis occupied 10 ml and contained 3 mg protein/ml. 0.02 ml of the extract and purified catalyze the phosphorylase enzyme at reaction rate of 5 and 12 $\mu\text{mole/ml/min}$ in a total volume of reaction one ml under the standard assay conditions. The dialyzed fraction was applied to Sephadex G-200. A pure phosphorylase enzyme has specific activity 900 $\mu\text{mol/min/mg}$ protein with total 4 mg protein calculate:

- a- Recovery of enzyme % after dialysis and gel filtration.
- b- The degree of purification after dialysis and gel filtration.
- c- What the different between homotrophic and heterotrophic allosteric enzymes
(15 Marks)

GOOD LUCK

Prof. Tarek M Mohamed

	TANTA UNIVERSITY FACULTY OF SCIENCE- DEPARTMENT OF CHEMISTRY			
	Examination for Seniors (Fourth year) students of biochemistry			
	COURSE TITLE:	Biological Oxidation		COURSE CODE:BC 4117
DATE: -1-18		TERM:FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:

- I- 1- Mention one example to be clarify ATP formation trapped energy from catabolic process (5 marks)**
- 2- In the presence of enzyme, calculate the energy barrier experimentally by using two different temperatures from curve. Draw the two figures, first to be clarify calculated experimentally energy barrier, second to be clarify the difference between ΔG and energy barrier (5 marks)**
- 3- Mention Mitchell and Paul Boyer hypothesis for the formation ATP from ATP synthase (5 marks)**
- II- Illustrate diagram to be clarify each of the following: (25 marks)**
- 1- Structure of complex V and complex I**
 - 2- Electron transport from complex III to complex V in the inner mitochondria via cytochrome c**
 - 3- Glyceraldehyde phosphate shuttle and translocation of ATP and phosphate.**
 - 4- The sequence of reactions during light absorption to form NADPHH⁺ in green plants**
 - 5- The inter-relationships between inorganic and organic nitrogen metabolism**
- III- Write with chemical equation each of the following:**
- 1- Trap of CO₂ in hot climate to form oxaloacetate and release into bundle sheets cell (5 marks)**
 - 2- Fenton reaction and antioxidant enzyme prevent it (5 marks)**

Best Wishes
Prof. EHAB M. M. ALI

C



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

FINAL EXAMINATION FOR 4TH YEAR STUDENTS

COURSE TITLE: "Instrumental 2"

COURSE CODE: CH4171

DATE: 17^{EN} JANUARY, 2018 TERM: FIRST TOTAL ASSESSMENT MARKS: 100 TIME: 2 Hours

Question (1): - Chose the correct answer to the following: [20 marks]

- 1) Chromatography can be used to
 - A) Form mixtures,
 - B) change mixture compositions.
 - C) Separate mixtures into pure substances,
 - D) all of these.
- 2) Which of the following detectors give concentration-dependent signals?
 - A) Electron-capture detector
 - B) Thermal conductivity
 - C) Infra-red detector.
 - D) All of these
- 3) Which of the statements is correct?
 - A) Gas chromatography is used to analyse gases
 - B) Gas chromatography is used to analyse solids
 - C) Gas chromatography is used to analyse gases, solutions and solids
 - D) All of the above
- 4) What does the retention factor, R_f , describe?
 - A) The distribution of an analyte between the stationary and the mobile phase
 - B) The migration rate of an analyte through a column
 - C) The velocity of the mobile phase
 - D) All of these
- 5) Which of the following is not used for detection in GC?
 - A) Infrared spectroscopy,
 - B) NMR
 - C) Flame ionization,
 - D) Electrical conductivity
- 6) What are the benefits of decreasing the column internal diameter?
 - A) Increased sample capacity
 - B) Increased resolution
 - C) Reduced risk of column overloading
 - D) All of the above
- 7) Which of the following gases is unsuitable for use as a GC carrier gas?
 - A) Nitrogen
 - B) Helium
 - C) Oxygen
 - D) All of the above
- 8) Thin layer chromatography is
 - A) Partition chromatography
 - B) Electrical mobility of ionic species
 - C) Adsorption chromatography
 - D) None of the above
- 9) In gas chromatography, the basis for separation of the components of the volatile material is the difference in
 - A) Partition coefficients
 - B) Conductivity
 - C) Molecular weight
 - D) Molarity
- 10) Ion exchange chromatography is based on the
 - A) Electrostatic attraction
 - B) Electrical mobility of ionic species
 - C) Adsorption chromatography
 - D) partition chromatography

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