الفصل البيولوجي

رابعة كيمياء - كيمياء حيوية

TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
EXAMINATION FOR CHEMISTRY/ BIOCHEMISTRY STUDENTS			
COURSE TITLE:	BIOLOICAL SEPARATION		COURSE CODE: BC4147
DATE: JANUARY, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOUR

Answer all the questions

I) Compare between the light microscopy and the electron microscopy. (10 marks)

II) Give short notes on each the following: (32 marks)

a- Visualization of DNA bands in agarose gel electrophoresis technique.

b- Scanning electron microscopy.

c- Principles of Real-Time Quantitative PCR Techniques.

d- In situ hybridization.

e- Fluorescence microscopy.

f- Restriction fragment length polymorphism (RFLP).

g- Phase-contrast microscopy.

h- Advantage and limitation of RT- PCR technique.

III) Explain the Southern blotting technique. (8 marks)

With my best wishes

Dr/ Abeer khamis

	Tanta UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION for senior (fourth Year) students OF BIOCHEMISTRY			
	COURSE TITLE:	*Ezymology [2]*		COURSE CODE4113
DATE:	JANUARY 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

1- Aspartate transcarbamylase (ATCase) is a regulatory enzyme at the beginning of the pathway for the biosynthesis of pyrimidine nucleotide. ATCase exhibits positive cooperativity and is activated by ATP and inhibited by pyrimidine nucleotide cytidine triphosphate (CTP). Both ATP and CTP affect the Km for the substrate aspartate but not Vmax. In the absence of ATP or CTP, the concentration of aspartate required for half-maximum velocity is about 5 mM at saturating concentration of the second substrate, carbamyl phosphate.

A- Draw a V_0 versus [S] plot for ATCase and indicate how CTP and ATP affect V_0 when (aspartate] = 5 mM and write the type of allosteric as K or M enzyme comment why

B- Describe the structure of ATCase

C- Write the mechanism of binding ACTase After binding ATP and CTP

(20 marks)

2-A- Describe the complete mechanism for the reaction that results in the ribonuclease catalyzed cleavage (The active site of the enzyme include histidine 12, 19; lysine 7, 41, valine 43; theronine 45; and aspartate 121).

B- Describe the role of zinc in carboxy peptidase A.

C- Describe disopropyl phosphate act as indecticides on working acetyl cholein esterase (15 marks)

3- cell-free extract of *E. coli* contains 24 mg protein per milliliter. 0.02 ml of the extract catalyze the phosphorylase enzyme at reaction rate of 1.6 µml/min. 50 ml of the extract was fractionated by ammonium sulfate precipitation. The fractionated precipitating between 30 and 50 % saturation was redissolved in total volume 10 ml and dialyzed. The solution after dialysis occupied 12 ml and contained 30 mg protein/ml. 0.02 ml of the purified fraction catalyzed the enzyme reaction rate of 5.9 µmol/min. Under the standard assay conditions calculate:

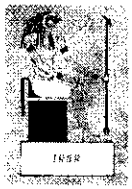
A- Recovery of enzyme %

B- The degree of purification in the ammonium sulfate step

C- Describe the advantages and disadvantages of enzyme immobilization

(15 Marks)

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: 20 -1-15		TERM: MED TERM	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:

I- A- Clarify each of the following with biochemical equations:

1- **Two functions of Rubisco** (4 marks)

2- **Formation of hypochlorous acids; and hydroxyl radicals from oxygen in leucocytes** (4 marks)

B- Compare between ΔG and ΔG0 and what is the relation between K equilibrium and ΔG0 (7 marks)

II- Write briefly the steps with diagram and/or biochemical equation each of the following:

1- **Sequence of reactions during light absorption in photosystem I and II to form $NADPH.H^+$.** (8 marks)

2- **C_4 pathway in mesophyll and bundle sheets** (7 marks)

III- Illustrate the diagram each of the following

1- **Re-oxidation of $FADH_2$ through electron transport chain till the formation of ATP** (5 marks)

2- **Inter the $NADHH^+$ from cytosol to matrix in mitochondria** (5 marks)

3- **Formation of the proton gradient and ATP synthesis in mitochondria and chloroplast** (5 marks)

4- **The flow of electrons in the nitrogenase catalyzed reduction of N_2** (5 marks)

Best wishes

Prof. Ehab M. M. Ali

	TANTA UNIVERSITY **FACULTY OF SCIENCE** **DEPARTMENT OF CHEMISTRY**			
	Examination for Seniors (Fourth year) of Biochemistry students			
	COURSE TITLE:	**Analytical Biochemistry**		COURSE CODE: 4149
DATE: 15 -1-15		TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:

I- 5 g of liver homogenized by 100 ml saline solution by homogenizer:

1- Fractionate by using centrifuge and ultracentrifuge to get separate mitochondria and cytosol free any subcellular organism and ribosome subunit----------(8 marks)

2- Confirm the mitochondrial separated are pure or not by using biomarkers----------(3 marks)

3- In apoptotic cells, cytochrome c is released from mitochondrial Explain western blot techniques to find cytochrome c and determine its molecular mass---------- (7 marks)

II- 1- Step the summary of principle to determine sequencing of protein. (4 marks)

2-Clarify diagrammatic the principle of isoelectric focusing (6 marks)

3- Clarify diagrammatic the principle of MALDI-TOF mass spectrometry. (6 marks)

III- 1- After the precipitation of protein from fungi by ammonium sulfate; the protein is dissolved and subjected by cation exchanger and eluted by stepwise NaCl. Draw schematic steps of ion exchange and elution diagram indicated separation of protein (6 marks)

2- How can you identify the patient infected with human immunodeficiency virus by using indirect ELISA (6 marks)

3-Clarify diagrammatically the technique of immune-affinity chromatography (4 marks)

Best Wishes

Prof. Ehab M. M. Ali

	Tanta UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY *EXAMINATION for Seniors (Fourth Year) students OF Biochemistry*			
	COURSE TITLE:	Immunology		COURSE CODE: BC 4107
DATE:	JANUARY, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

1- Prove the following (25 marks)

a- Cellular cooperation in the immune response by Calaman Experiment

b- Apoptosis of T-cell in thymus by endogenous glucocorticoid

c- Spleen depend on the age

d- Ig G of toxoplasmosis by indirect ELISA test .

2- Illustrate with a diagram of the following (25 marks)

a. Immunoglobulin that secret in tears

b. The spleen structure

c. Activation of neutrophil

d. Classical complement pathway

4- Differentiate between: (25 marks)

a. NK1-T Cell and T cell

b. T-dependent and T-independent response. In Ag type and Ig generation

c. Type of Identity and non identity in auchterlonv test

d. Endogenous and Exogenous protein Ag in definition, Ag presenting cell and MHC class type

4- Give account of each the following: (25 marks)

a. Innate immunity in gastric intestinal tract

b. Activation phase of anaphylaxis

c. Direct complement fixation test of rubella IgG in seum

d. Serum sickness

أطيب التمنيات بالنجاح و التوفيق

Prof Tarek M Mohamed

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (CHEM/BIO, CHEM/BOT, CHEM/GEO, CHEM/ENT, CHEM/ZOO)		
	COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4155)	TIME ALLOWED: 2 HOURS
DATE: JAN 04, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	

Answer the following questions:

1) Compare between the followings:

a) The wet process and the thermal process for the manufacture of phosphoric acid. (5 marks)

b) Rasching process and the urea process for the production of hydrazine. (5 marks)

c) Commodity chemicals, specialty chemicals and fine chemicals. (4 marks)

2) Write short notes on:

a) The difference between the main allotropic forms of phosphorus (4 marks)

b) Industrial applications of hydrogen gas (3 marks)

c) Steam reforming process (2 marks)

d) Cryogenic air separation (2 marks)

3) Draw the schematic diagram for petrochemicals derived from <u>one only</u> of the following:

i- Methane ii- Benzene iii- Ethylene (10 marks)

4) Outline the chemical reactions used in pharmaceutics and drug synthesis. (10 marks)

5) Show by equations the manufacture of drug required to treat <u>one only</u> of the following diseases: (5 marks)

i- Headache (Aspirin) ii- Antibiotic (Sulpha drug)

iii- Analgesic (Tramadol)

<u>Examiners:</u> Prof. Mohamed A. ElBorai Dr. Wael A. Amer
Dr. Mohamed Sadek

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR JUNIORS (FOURTH YEAR) STUDENTS OF CHEMISTRY/ENTOMOLOGY			
	COURSE TITLE:	Ecology of fresh water insects		COURSE CODE: EN 4149
DATE	13/1/2015	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

Notice: rewrite the answers on your notebook الامتحان مكون من 3 صفحات

Answer the following questions:

Part II

1. Fill in the blanks with the appropriate words: **(20 Marks)**

a- The lentic ecosystem including.....,.....,and.....
b- Lotic ecosystem including.....and.....
c- Water chemistry can restrict the occurrence or abundance of aquatic insects, including.....,.....and .....
d- Lake ecosystem s can be divided into three zones.....,.....,and.....
e- Wetlands areas are.....
f- lotic substrates can be broadly divided into.....and.....
g- ....., ...,and.....examples of insects found in interstitial spaces on the undersides.
h- A low diversity of insects is typically found in fine sediments because.....
i- Types of insect species adapted for living in fine sediment habitat are..... ,.....and.....
j- Caddiesflies of the family Hydropsychidae construct.....to capture suspended food particles

2- Give short notes on: **(9marks)**

a. ponds
b. river ecosystem.
c. functions of aquatic ecosystems.

3- How water temperature affects on aquatic insects? (5marks)

4- Mention the scientific term for these sentences: **(5marks)**

usually cool water.
b. Remove and consume attached algae and associated periphytic material.
c. Ingest coarse particulate organic matter.
d. Eat living organisms.
e. Consume decomposing fine particulate organic matter.

5- Choose the correct answer from between brackets: **(5marks)**

a. Several taxa of Ephemeroptera declined at pH below (6.5 -5.5 – 7.5).
b. Many (mayfly – moth fly – caddis fly) pupate in dense aggregations on protected faces of cobbles and boulders.
c. (Embioptera – Ephemeroptera – Trichoptera)construct silken nets to capture suspended food particles.

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d. (caddis fly – may fly – black fly) filter food from water with specialized mouth parts.
e. (shredders- vertebrate predators- grazers) is tertiary consumers.

6- Indicate whether the following statements are true (T) or false (F) and correct the false one: (6marks)

a- Chironomid midge migrates vertically at night toward the surface both to obtain oxygen and to hunt for prey ( )
b- The upper lethal limit for all but the most specialized species is between 50-70°C. ( )
c- Coarser bed materials provide more interstitial habitat for insects than do finer sediment. ( )

Part II

A.Complete the following sentences: (22 marks)

1. Some of the better-studied examples of specialized micro- habitats include ....., ..., ...,....,....,..... and other subterranean environments.
2. ..... is the most common mechanism for acquiring food in specialized habitats of insects.
3. The most likely mechanism that has prevent high insect diversity in marine habitats.....and.....
4. Members of.....and ..... are perhaps the best represented Aquatic insects inhabiting subterranean habitats.
5. Aquatic insects respond to predators through.....adaptations with important consequences for aquatic insect communities.

B. Choose the correct answer from between brackets: (16 marks)

1. Many drift studies have focused on the (importance -dangerous effect -unique property) of drift in supporting fish production.
2. (Engulfing predators- Odonate larvae – stoneflies) are limited to prey small enough to be subdued and swallowed intact.
3. The presence or absence of(insects-fishes- macrophytes) within a water body has a major impact on community structure
4. Permanent habitats tend to have the (highest-lowest-occasionally) diversity of insect species.

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5. In stream habitats where Hydra are abundant, long hairs on the midge larva *Cricotopus sylvestris* decrease (predation risk - drift- fish attach) relative to short haired species.
6. When fish are absent, predatory insects may control the (abundance – equitability- dispertion) of their prey.
7. Many drift studies have focused on the (dangerous effect -unique property- importance) of drift in supporting fish production.
8. Some larval Limnephilidae become (facultative-opportunistic- free-roaming) predators in later instars.

C. Answer the following questions: (12marks)

1. Why drift densities are much higher at night than during daylight hours?
2. Why piercing predators have access to a broader variety of prey sizes?
3. What are the most likely mechanism that has prevent high insect diversity in marine habitats?
4. When are Insects may drift passively or; accidentally?

With our Best Wishes

EXAMINERS:	**Prof.Dr. / Ensaf El-Sayed El-Gayar** **Dr./ Iman El- Husseny**

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF CHEMISTRY - ENTOMOLOGY			
	COURSE TITLE:	Insecticide Toxicology		COURSE CODE: EN 4143
DATE:6/1	JUNE, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions in each group:

Group 1 (Total: 52 Marks)

1. Fill in the blanks with the appropriate words: (Total: 28 Marks,2 for each)

a. Ideal repellent applied to human skin should be.....

b. The two primary uses of insect pheromones are.....and.....

c. The main types of mating disruption products presently available are .....

d. Paradichlorobenzene is used as .....

e. Contact insecticides have to penetrate .....

f. Inorganic chemicals such as .....are typical stomach poisons.

g. Fumigants kill the insects by.....

h. Economic injury level is defined as .....while the economic threshold is defined as.....

i. The relative toxicity of stomach poisons to insects depends on.....and.....

j. The physiological effects of chemosterilants are.....and.....

k. The development of an ability in a strain of some insects to tolerate toxicant that would prove lethal to a majority of individuals in a normal population of the same species is defined as.....

l. Botanicals are derived from.....The most common examples are .....,.....and..... are highly toxic to insects.

m. the organochlorines are very persistent, with residual activity of several weeks to many years. Examples are .....,.....and.....

n. Insect repellent include all chemicals that protect animal or plants from insect by making them.....,.....or.....

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(٢ صفحات)

2. **Indicate whether the following statements are true (T) or false (F): (Total: 14 Marks, 2 for each)**

a. All residual contact insecticides are not toxic to mammals.

b. Most of the antimetabolites affect only the females of the species.

c. The testis of chemosterilant treated males shows drastic morphologic changes.

d. The time of application of residual contact insecticides is very critical.

e. Paradichlorobenzene is effective only in tight containers.

f. Repellents are chemicals which cause insects to move away from the source of the chemicals .

g. Rotenone dusts are useful for the control of different ectoparasites .

3. **Choose from between the brackets the correct answer: (Total 10 Marks, 2 for each)**

a. a.The inorganic metals such as lead arsenate and calcium arsenate are (contact -----stomach-----systemic) poisons.

b. Sterile insect release method, was proposed as a control technique for (the house fly-------screw worm).

c. Permanent sterility induced by some chemosterilants affect (all stages of spermatogenesis--------early stages of spermatogenesis) which prevent normal reproduction.

d. Organophospates are used inspite of their very high toxicity to humans because they have such (short – moderate –long) residual life.

e. (Pyrethin - pyrethrum – parathion) is one pesticide with excitorepellent propertiesIt is employed to flush hidden insects.

Group 2 (Total: 48 Marks)

1. Write short nots on :- (Total: 20 Marks, 4 for each):

a. Exitorepellants.

b. Stomach poisons.

c. Antimetabolities.

d. the main characteristics of an ideal insecticide.

e. Mode and site of action of nicotine .

2. Define the following items :- (Total: 8 Marks)

a. Chemosterilans. (2 Marks)

b. Insectgrowth regulators (IGRS). (3 Marks)

C. Insect attractant. (3 Marks)

3.Answer the following questions :- (Total: 20 Marks, 4 for each)

a. Factors concerned before the use of toxic substances :-

1-.....2-.....3-.....

b. The insecticides are Classified according to their mode of entry or attack to :-

1-.....2-.....3- .....4- .....5- .....

c. Ideal fumigant should be :-

1- .....2- .....3- .....

d. Resistance mechanisms divided into four broad categories :-

1- .....2- .....3- .....4- .....

e. The contact insecticides are classified into two groups :-

1- .....2- .....

Best wishes.

EXAMINERS	PROP.DR. MOHAMED A. SOLIMAN	PROF. DR. ELSAED NAEM

	Tanta University Faculty of Science Geology Department	Level 4 (Chemistry/Geology) Geology of Egypt (GE 4103)	Time allowed: 2 hrs. Date: 22/1/2015	

Write briefly on the following:

1. Major structural units of Egypt ..... (20 Marks)
2. Exposed Paleozoic rocks in Sinai and southwestern Egypt ..... (20 Marks)
3. Marine Triassic succession at Araif El Naga dome, North East Sinai..... (20 Marks)
4. Jurassic succession at Gebel Maghara dome, northern Sinai ..... (20 Marks)
5. Cretaceous/Tertiary rocks at Gebel Duwi, Quseir area, Red Sea Coast ... (20 Marks)

Examiners

Prof. A.T. Abdel-Hameed Prof. A. Rashad Prof. M. Ashmawy Prof. A. Marzuk

تمنياتنا بالتوفيق والنجاح

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (CHEM/MICRO)		
COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4155)		TIME ALLOWED: 2 HOURS
DATE: JAN 04, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	

Answer the following questions:

(1) Draw the schematic diagram for petrochemicals derived from one only of the following:
i- Methane ii- Benzene iii- Ethylene (10 marks)

(2) Outline the chemical reactions used in pharmaceutics and drug synthesis. (10 marks)

(3) Show by equations the manufacture of drug required to treat one only of the following diseases: (5 marks)
i- Headache (Aspirin) ii- Antibiotic (Sulpha drug)
iii- Analgesic (Tramadol)

(4) Select the right answer of the following: (5 marks)

I. The source of ----------from the atmosphere
a) Ne_2 b) Ar c) Cr d) Xe_2

II. Raw material of sodium chloride from ----------
a) Hydrosphere b) biosphere c) lithosphere d) atmosphere

III. The raw material of white phosphorous is--------phosphate
a) Na b) Ba c) Ca d) Al

IV. ---------is in the top ten BIC
a) Ethylene b) sulphuric acid c) hydrogen d) propylene

V. The contact process is used for production of
a) H_2 b) NH_3 c) H_2SO_4 d) H_2O_2

(5) Give the reason of the following: (8 marks)

I. Red phosphorus is less active than White phosphorus
II. SO_3 react with conc. H_2SO_4 instate of H_2O for manufacture of sulphuric acid
III. White phosphorus is used in ammunition
IV. Red phosphorus is used in making the strike plate of matchboxes.

(6) Complete the following sentences: (8 marks)

I. Current global of hydrogen production are ----------
II. Desulphurization is ----------
III. Schift conversion reaction is ----------
IV. The raw martial f or manufacture of ammonia are ------,----,-----
V. Use of hydrogen are ----------,-------

(7) Compare between the Partial oxidation and Steam reforming process for H_2 production. (4 marks)

Examiners: Prof. Mohamed A. ElBorai Assist. Prof. Nadia ElWakail

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR (SENIORS) STUDENTS OF CHEM/BIOCHEM SECTION CH			
	COURSE TITLE:	BIOCHEMISTRY 1		COURSE CODE: 4107
DATE: 11 -1.15	JANUARY, 2015	FIRST TERM EXAM	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions:

I- A-Explain each of the following:- **(5 marks each)**

i—Glycosyl transferases catalyze the transfer of activated carbohydrate moieties from a donnar to an acceptor molecule.
ii- Certain lytic enzymes exhibit high order group specificity .
iii- Niacin is required for the synthesis of the active forms of vitamin B3.
iv- Pantothenic acid is required for the synthesis of Coenzyme A.
v- NAD^+ can degraded by two pathways ; the product is nicotinamide by either pathway.
vi- Citric acid cycle acts as the pathway for the oxidation of acetyl -CoA to CO2 and water.
vii-Gluconeogenic mechanism clear the products of the metabolism of other tissues from the blood.ef. lactate.

II- Choose the correct answer (s) . Explain by equation(s) **(5 marks each)**

i- Amajor function of TPP is:
a) making amino- acids b) a cofactor for PDHc and αKGDHc catalyzed reactions
c) Production of NAD^+ d) decarboxylation of α-ketoglutaric acid

ii-Coenzyme for deaminase or dehyratase of serine yields :-
a) ammonia b) pyruvic acid c) threonine d) CO_2

iii- In glycolysis , the conversion of fructose 1,6- bisphosphate to immediate products(s) involves
a C3-C4 bond cleavage b) dehydration
c) phosphoryl transfer d) isomerization

Tanta University Faculty of Science Chemistry Department	Final Exam Chemistry of Petroleum	
	Level Four	Course Code: CH 4145
	January 2015	Total Assessment Marks: 50
Chemistry/Microbiology	Time allowed : 2 Hours	Date: 13/1/2015

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- Aniline point.

ii- Oxygen compounds in petroleum.

iii- Naphthenes compounds.

iv- Sulfur content. v- Ethane.

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

i- Reforming. ii- Catalytic Cracking. iii- Hydrotreating.

iv- Classification of Crude Oils.

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

1- Carbon black. 2- Ammonia nitrate fertilizer. 3-Teflon.

4- Hexamethylene tetramine. 5- Hydrazine hydrate.

6- Ethylene glycol. 7- Dichloro, Diphenyl Trichloroethane (D.D.T).

8-Phenolic resins. 9- Adipic acid. 10- Nylon 6, 6.

,,,,,,,,,,,,,,,,,,,,,,,,,,,, ***Good Luck*** ,,,,,,,,,,,,,,,

Prof. El-Refaie Kenawy **Dr. Seham Abdel latif**

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	Examination for Seniors (Fourth year) of Biochemistry students			
	COURSE TITLE:	**Analytical Biochemistry**		COURSE CODE: 4149
DATE: 15 -1-15		TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:

I- 5 g of liver homogenized by 100 ml saline solution by homogenizer:

1- Fractionate by using centrifuge and ultracentrifuge to get separate mitochondria and cytosol free any subcellular organism and ribosome subunit----------(8 marks)

2- Confirm the mitochondrial separated are pure or not by using biomarkers----------(3 marks)

3- In apoptotic cells, cytochrome c is released from mitochondrial Explain western blot techniques to find cytochrome c and determine its molecular mass---------- (7 marks)

II- 1- Step the summary of principle to determine sequencing of protein. (4 marks)

2-Clarify diagrammatic the principle of isoelectric focusing (6 marks)

3- Clarify diagrammatic the principle of MALDI-TOF mass spectrometry. (6 marks)

III- 1- After the precipitation of protein from fungi by ammonium sulfate; the protein is dissolved and subjected by cation exchanger and eluted by stepwise NaCl. Draw schematic steps of ion exchange and elution diagram indicated separation of protein (6 marks)

2- How can you identify the patient infected with human immunodeficiency virus by using indirect ELISA (6 marks)

3-Clarify diagrammatically the technique of immune-affinity chromatography (4 marks)

Best Wishes

Prof. Ehab M. M. Ali

TANTA UNIVERSITY
FACULTY OF SCIENCE
COMPUTER DEPARTMENT

EXAMINATION FOR FOURTH YEAR (شعب: كيمياء حيوي) CODE 14065

COURSE TITLE: COMPUTER (DATABASE RINCIPALS)

DATE: 21-1- 2013 30 DEGREES TIME 2 HOURS

1- For the following statements, Put the (√) sign beside the correct statements and put the (X) sign beside the incorrect statements and correct them:

(a) A cross tab query can contain up to 4 columns header

(b) In database Report we can make up to 4 grouping and sorting according up to 12 fields

(c) A Bound object in a Form can be used to make a calculation

(d) The data type of Phone Number in a table of database must be Number

(e) More conditions in the same Criteria raw in query design view make (OR) Conditions between many Records (5 Degrees)

2- Rewrite the following statements and Complete it:

(a) A primary Key cannot allow ---------- and must have a ------- index

(b) To create a many to many relationships between two tables we need ---------- Table

(c) The type of a field containing a Photo in a table must be --------

(d) The three parts in a report page are----------,---------- and ----------

(e) There are many types of queries such as ----------,----------,---------- ----------,---------- (5 Degrees)

3- (a) Define only two of the following:
Expression Builder– Table Record – AutoForm

(b) Write the functions of only two of the following:
Form – Find Unmatched Query - Report

(10 Degrees)

4- Answer only two of the following:

(a) Write the different steps necessary to create a Report using the Report Wizard

(b) Write two methods used to create an AutoForm

(c) Show how to make criteria in a query (10 Degrees)

Best Wishes

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF MATHEMATICS

EXAMINATION FOR PROSPECTIVE STUDENTS (FOURTH YEAR) STUDENTS OF CHEMISTRY (ZOOLOGY)

COURSE TITLE: BIOSTATISTICS		COURSE CODE: ST4107	
DATE: JANUARY, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2HOURS

Answer the following questions:

First question:

1. Find (mean – median – mode – variance – standard deviation) for the following data:

   8, 5, 7, 5, 9, 5, 10

2. Define: null hypothesis – level of significance – type II error- dependent variable – coefficient of correlation.

Second question:

1. Explain the steps of hypothesis testing for the difference of two means.
2. A teacher randomly selects ten students to participate in a week of training designed to improve their typing speed. The teacher measures their speed before and after the course and he obtained the following data:

Before	55	46	78	61	52	45	47	57	71	58
After	50	42	70	63	58	35	46	52	60	49

Test if the course improves the students typing speed at $\alpha = 0.05$ and given $t_{9,0.05} = 1.833$.

Third question:

Calculate the coefficient of correlation for the following data:

X	40	45	50	55	60	65	70	75
Y	1.0	1.5	1.8	2.2	3.2	3.7	3.9	4.0

EXAMINERS	PROF. DR./ AHMED REDA EL-NAMORY	DR/ NEAMA SALAH YOUSSEF

With my best wishes

	Tanta UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAMINATION for Juniors (Level Four) students of Chemistry/ Botany			
	COURSE TITLE:	Nitrogen Metabolism		COURSE CODE
DATE 11/1/2015	JANUARY, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

1-Define each of the following: (10 Marks)

a- Combined nitrogen

b- Volatilization of ammonia

c- Mineralization

d- α-helix structure of protein

2-Complete the following: (20Marks)

a- Proteins are classified on the base of solubility into .....

b- Nitrate absorption is .....process while ammonium absorption is .....process.

c- Salting out of proteins means .....

d- Most biological systems are unable to utilize the atmospheric N_2 molecules because.....

e- The quaternary structure of proteins consists of .....

3-Discuss the following (70 Marks)

1- Why was the hypothesis of "glutamate dehydrogenase pathway of ammonium assimilation not accepted? Explain, and discuss the accepted one.

2- The disadvantages of nitrate and ammonium nutrition?

3- Classify the protein on the basis of: **a-** function **b-** structure **c-** shape **d-** location

4- The mineralization process of the nitrogen cycle.

5- The absorption processes of nitrate and ammonium in plant.

EXAMINERS	PROF.DR./ WEDAD ABD EL-AZIZ KASIM

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR JUNIORS (FOURTH YEAR) STUDENTS OF CHEMISTRY/ENTOMOLOGY			
	COURSE TITLE:	Biological monitoring of fresh water system		COURSE CODE: EN 4151
DATE	JANUARY, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS:50	TIME ALLOWED: 2 HOURS

Notice: rewrite the answers on your notebook

Answer the following questions:

1. Identify the following:
   Biological monitoring - *Toxicity bioassays* - ecosystem indices – bioindicator – pristine site. (15marks)
2. Write on the types of Reference site. (5marks)
3. Explain the concept of assessment. (5maks)

4. Indicate whether the following statements are true (T) or false (F) and correct the false one: (5 Marks)

a. Midges are intermediate category from invertebrate indicator groups. ( )
b. Caddies flies (net- spinners) are sensitive category from invertebrate indicator groups. ( )
c. Crayfish are tolerant category from invertebrate indicator groups. ( )
d. If the number of invertebrate sample is lower than 5% ,the abundance category is common. ( )
e. if biological index (Sum score)is lower than 15 indicates poor degraded water quality&habitat problems needing repair. ( )

5. Fill in the blanks with the appropriate words: (10 Marks)

1- In bioassessment aquatic area buckets and aquarium net are used for.....
2- The shallow white plastic pans are used for.....
3- We need tweezers in the work of bioassessment for.....
4- We need the ice tube tray for.....
5- The plastic vials are important for.....
6- To preserve the samples we need.....
7- By using the magnifying lens it is easier to see and.....
8- A small plastic ruler is important to.....
9- Mild pollution may increase.....but more severe pollution results in .....
10- Bioassessment is use of.....

6- What are the habitat features that help in interpreting the cause of differences in biological indicators among different stream sites. (5marks)

7- What are the possible comparisons of biological indicator values? (5marks)

Good Luck

EXAMINERS	DR. AHMED M. El BOSSERY DR. IMAN M. EL HUSSEINY

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY		
	FINAL EXAM FOR CRDIT HOUR STUDENTS		
1969	COURSE TITLE: LASER CHEMISTRY		COURSE CODE: CH4113
DATE:27 JANUARY, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME:2 HOURS

Answer the following questions (10 marks each):

1- In the thermal lensing:

a) Write equation of intensity change as a function of time.
b) Draw the experimental setup of the apparatus used.
c) Draw thermal lensing trace output
d) Draw a typical energy diagram for singlet oxygen sensitization showing the rate determining step in the sensitization process.

2- Draw each of the following:

(a) Proton transfer process in salicylamide as a model of proton transfer dye laser.
(b) The chemical structure of methyl aminolevulinate (MAL)
(c) The chemical structure of MUCAP reagent used in salmonella detection.
(d) A modified Jablonoskii diagram.
(e) The relative energies and notations of the ground and the first two excited states in O_2.

3- In the application of lasers, explain the following:

a) The reaction scheme in the photosynthesis of vinyl chloride using 1, 2 dichloroehane (DCE) as a starting material.
b) Impurity removal of H_2S from syngas.
c) Modification of Teflon and polymethyl methacrylate (PMMA) surfaces.
d) Laser capture micro dissection (LCM).
e) Laser lithotripsy of calculi.

4-In fluorescence activated cell sorting (FACS), put numbers in the following table below each component according to their sequence in the measuring apparatus then transfer the Table to your answer sheet:

avelength detector and analyzer	Collection tubes	Laser excitation	Mixed cell populations bound to antibodies	Electron sputtering system	Nozzle	Charged plates

5- Among the factors enhancing ic and vc is molecular flexibility, explain how this principal is applied in each of the following: (a) Fingerprint development (b) DNA quantification (c) Salmonella detection by MUCAP reagent.

End of Exam

Tanta University
Faculty of Science
Chem. Departement

Final exam. in petroleum and petrochemicals for level: 4 students(Chem.\Biochemistry, Chem.\Zoology,Chem\geology andChem.\botany Sections) *Code:CH4145* *Time : 2hrs*

Answer the follwing questions:

1] Discuss indetails each of the follwing:

a) The berthelot theory

b) Gas oil

c) Sulphure content and quality of crude oil

d) Synthesis of nylon 6,6 and nylon 4,6 from petroleum

e) Kerosine zone

f) VI Index and lubricating oil

g) Olefin hydrocarbons in crude oil

h) Classification of crude oil according to CI index

i) Aniline point

j) Metallic compounds in petroleum

(20 marks)

2] Hydrogen sulphide is one of the most poisonous gases known . Show with equations all petrochemical reactions of it

(10 marks)

3] Show with equations how the follwing compounds were obtained from petroleum and show its uses :

a) Caprolactam

b) Linear alcohols

c) Hydrazine hydrate

d) Methyl methacrylate

e) Ethanol amine

f) Dimethyl terphthalate

g) Carbon disulphide

h) Ammonia nitrate fertilizer

i) Vinyl chloride

j) Phenolic resins

(20 marks)

GOOD LUCK

Dr.ABDEL-BASET MORSY

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT CHEMISTRY			
	Final EXAMINATION for 4th YEAR students of chemistry/Geology: Chem/Zoology; Chem/Entomology			
	COURSE TITLE:	Forensic chemistry		COURSE CODE: 4161
DATE:	JANUARY 11TH 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions:

1- Choose the correct answers ***10 marks***

i- Marquie's reagent is the spray for detection of:

a- meprobamate b) opium alkaloids c) salicylate

ii-Carbon monoxide percentage increase as :

a) 541 nm spectrum peak increase b) 576 nm spectrum peak increase

c) The two bands are the same).

iii- The active ingredient in cannabis is:

a) cannabinol b) cannabidiolic acid b) Δ^8 Tetrahydrocannabinol

c) Δ^9 Tetrahydrocannabinol).

iv- The spray reagent for phosphorous insecticides is:

a) Diphenylamine b) Iodo platinate c) palladium chloride)

v- The two steps for isolation the nonvolatile compounds are:

a) Precipitation of the proteins then detection

b) Extraction then detection.

c) Isolation then detection.

2- Answer the following questions: ***10 marks***

a- Compare between the mobile phase and stationary phase in T.L.C, GC, HPLC, and GC-MS

b) Explain the chemical tests for detection of carbon monoxide in blood.

3- Answer only three from the following questions: ***10 marks***

a- Explain the samples in living and postmorten cases.

b- The classification of poisons.

c- Explain the ammonium sulphate method in precipitation of proteins

d- The factors affecting R_f values in thin layer chromatography.

e- Screening tests.

4- Answer the following questions: ***10 marks***

a- How can you identify hashish in blood?

b- Explain the extraction of pesticides from viscera

5- Answer the following questions: ***10 marks***

a- Explain the extraction of morphine from urine.

b-How can you identify the organic phosphorus in stomach wash?

مع تحيات

ا.د :الرفاعى قناوى

د. نرمين سكر

	Tanta University Faculty of Science Chemistry Department		
	Examination for (Credit hours) Students		
	Course Title	Pesticides	Course Code: CH4119
Date:	January 2015	Total Asssessment Marks: 50	Time Allowed: 2 hrs

I) Mark (√) for the write and (×) for the wrong statements and correct the wrong one (14 M):

1. Action of chlordane on insects is fast, so it is mixed with alkaline pesticides e.g lime sulpher. ( )
2. Pesticides applied indoors usually breakdown at a faster rate due to the lack of sunlight. ( )
3. Methyl parathion is hydrolysed 4.3 times faster in alkali than parathion. ( )
4. Arsenites are more soluble than arsenates and more poisonous to animals and plant life. ( )
5. Persistent insecticides have half-life time less than 30 days. ( )
6. Acute toxic effect arises from long term exposure to small quantities of pesticides. ( )
7. Technical grade of Systox is a mixture of thiono isomer (70 %) and thiolo isomer (30 %). ( )

II) Choose the correct answer and write the full chemical equation (12 M):

1) Dehydrochlorination of DDT followed by CrO_3 oxidation gives:

a) *p,p*-Dichloro benzophenone b) DDD c) Bis(4-chlorophenyl)-1-chloroethane

2) Effect of heat on γ-isomer of BHC gives:

a) 1,2,3-trichloro benzene b) 1,3,5-trichloro benzene c) 1,2,4-trichloro benzene

3) Action of con. HNO_3 on parathion gives:

a) Demeton b) Paraoxon c) Malathion

4) Treatment of HCCP with cyclopentadiene followed by chlorine gives:

a) Chlordane b) Heptachlor c) Endrin

III) Write the chemical structure of the following pesticides (12 M):

1) Parathion 2) DDD 3) Systox 4) Paris Green 5) Nornicotine 6) Bordeaux mixture

IV) Complete the following chemical equations: (12 M):

1) Diethyl chlorophosphate + triethyl phosphate —Cu/benzene/150^0 → A —Hydrolysis→ B

2) Trichloro acetaldehyde + anisole + c. H_2SO_4 → A —alc. KOH→ B

3) Sec.amine + NaOH + CS_2 → A —ZnO→ B

4) Carbrayl —Epoxidation→ A —Hydrolysis→ B

...... ***With Best Wishes*** ...... ***Dr. Atif El-Gharably*** ......

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT CHEMISTRY			
	Final EXAMINATION for 4th YEAR students of chemistry/Geology: Chem/Zoology; Chem/Entomology			
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د. نرمين سكر

جميع الشعب ازدوجيه + كيمياء فاك + بنات ا
ك / حيوان

Tanta University Faculty of Science Chemistry Department		
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