

جميع الشعب مترجم في ذلك (الجامعة السورية) ع
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	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR CRDIT HOUR STUDENTS		
	COURSE TITLE:	LASER CHEMISTRY (CH4143)	TIME ALLOWED: 120 MINS
DATE: 27-12-2016	FIRST Term	TOTAL ASSESSMENT MARKS: 50	

Answer each of the following questions:

1- Complete each of the following : (2 Marks for each)

- The principle components of a laser are:
- The four main characteristics of a laser beam are:
- The Advantages of proton transfer dye laser are:
- In ruby laser, the host material is and Gust is
- In Titanium sapphire laser, the emission result from transition and chemical laser gives laser emission inregion

2- Define or explain each of the following: (2.5 Marks for each)

- Lifetime of electronically excited states
- Photo-toxic drugs
- Energy transfer dye laser system
- Aflatoxine Analysis

3- Give the key reason(s) for each of the following : (2 Marks for each)

- Benzophenone is a good triplet sensitizer to naphthalene
- Excitation spectroscopy is useful than the absorption spectroscopy
- 1,4 – bis(β-pyridyl-2-vinyl)benzene (P2VB) is good laser dye than 2,5- distyrylpyrazine (DSP)
- HClO₄ is used to acidify dye laser instead of HCl
- 4- Methylumbelliferyl caprylate (MUCAP) reagent is used to detect the salmonella

4- Only draw each of the following: (2.5 Marks for each)

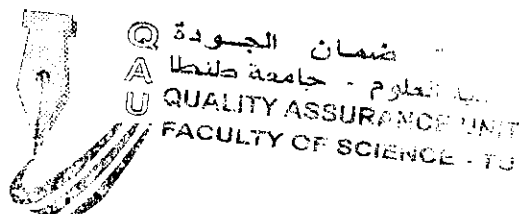
- Energy levels in salicylamide as a proton transfer dye laser
- Energy levels in Argon ion laser
- Energy levels in excimer laser
- Energy levels in He – Ne laser

5 - (a) Molecular oxygen play more important role in photodynamic therapy (2.5 Marks for each)


- Define the ground and excited states of molecular oxygen
- Explain the mechanism of photodynamic therapy by singlet oxygen

(b) Dye lasers are important laser system: (2.5 Marks for each)

- Give the chemical structure of coumarine and oxazine laser dyes
- Suggest the spectral region output for : Xanthene dye, diolefinic dye, and coumarine dye



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	Tanta University Faculty of Science Chemistry Department		
	Examination for fourth Year Students		
	Course Title: Chemistry of Textile fibers	Course Code: CH4121	
	Date: January 2017	Total Assessment Marks: 50	Time Allowed: 2 hrs

1) Differentiate between each of the following: (21 Mark)


1. Effect of alkali and action of heat on cellulose and acrylic fibers.
2. *m*-Aramid and *p*-Aramid fibers.
3. The reduction of wool by thiols and phosphines.
4. Natural and man-made fibers.
5. Strength, resiliency, laundering, drying and ironing of wool and silk
6. Chemical Processing of Cotton and wool.

2) Mark (√) or (×) and correct the wrong statement: (10 Marks)

1. Wool undergoes pyrolysis above 250 °C. ()
2. Cotton fibers are not as pure as Flax in terms of cellulose content; they contain only about 60% cellulose. ()
3. As a result of the loss of sericin during degumming, silk loses 50 % of its weight. ()
4. Cellulose II is the form found in native, untreated cotton. ()
5. Wool fibers are more resistant to acids. ()
6. Alkalis are the most destructive agents for cellulose, attacking the glycosidic linkages. ()
7. After cotton, flax is the most widely used of the natural fibers. ()
8. The optimum conditions required for peroxide bleaching of cellulose are treatment for about two hours at room temperature and at pH 5. ()
9. The main sites for linking in keratin chains are the amino groups in the lysine residues. ()
10. Viscose rayon is considered as man-made fibers. ()

تابع الأسئلة في الصفحة القادمة

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	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (CHEMISTRY AND ZOOLOGY SECTIONS)		
	COURSE TITLE:	WATER TREATMENT (CH4127)	TIME ALLOWED: 2 HOURS
DATE: JANUARY 22, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	

Question 1: Discuss briefly:

(24 Marks)

- a) Difference between TDS and TSS.
- b) Coagulation-filtration technique for the removal of solid from waste water.
- c) Trickling filter and rotating biological reactors (composition and theory of action).
- d) Chelation and ion exchange processes for water softening.
- e) Comparison between BOD and COD.
- f) Removal of dissolved organics from wastewater.
- g) A schematic diagram for municipal water treatment plant.
- h) Two methods to reduce levels of pathogens in sewage sludge.

Question 2: Give the reason(s) for the following statements:

(16 Marks)

- a) pH influences the degree of ionization, volatility, and toxicity of certain dissolved substances in surface water (show by two examples).
- b) Outside a chemical laboratory, truly pure water generally is not desirable.
- c) The addition of lime during municipal water treatment.
- d) The soil CO₂ is usually of higher concentration than the atmospheric CO₂.
- e) Some water disinfectants cannot be shipped but are generated on-site.

Question 3: Complete the following sentences:

(10 Marks)

- a) Denitrification is and it can be done via
- b) Hardness is a property of while the alkalinity is a property of
- c) The two important sources of H₂S in the environment are and
- d) Fish need at least DO to grow and thrive.
- e) The primary sewage water treatment is done to remove
While the secondary treatment is performed to remove
- f) The removal of iron and manganese from wastewater depends on

With Best wishes

Examiners: Prof. Kamal Elbaraie

Dr. Wael A. Amer

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION FOR LEVEL FOUR CHEMISTRY STUDENTS

Course Title:	BIOINORGANIC CHEMISTRY	Course Code: CH4117		
DATE	10.01.2017	TERM: First	Total assessment marks: 100	Time Allowed: 2 HOUR

Answer all of the following questions

I. Match each item in column A to the correct description in column B. (20 marks)

A

1. Heparin
2. Sodium
3. Iodine
4. Magnesium
5. Potassium
6. Hemochromatosis
7. Ceruloplasmin
8. Calcium
9. Phosphorus
10. Copper

B

- A. Formation of many coenzymes as CoA-SH, NAD
- B. A copper containing plasma protein that converts iron to a form that can be transported and stored
- C. Blood clotting
- D. Hemopoiesis
- E. Co-factor of many enzymes like kinases
- F. Iron regulatory hormone
- G. Goiter
- H. Disorder of Iron
- I. Maintenance of fluid volumes and osmotic pressure
- J. The transport of amino acid through membranes

II. Determine the biological function of : (10 marks)

- 1- Copper 2-Iodine 3-Phosphorus 4-Sodium 5-Iron

III. Discuss each of the following: (10 marks)

- 1- Absorption and transport of Iron.
- 2- Mechanisms by which heavy metals induce toxicity.

IV. Discuss the DNA binding of metal complex. (20 marks)

V. 1. Show by equation the effect of H₂O₂ on the following:

(16 marks)

a- Cytochrome c [Fe(II)]

b- Chloroperoxidase

2. Define the Siderochromes

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- b. Neuromuscular disruptors and respiratory disruptors directly are usually slow and narrow in spectrum of activity.
- c. Carbamates and organophosphates are inhibitors of acetylcholinesterase.
- d. Avermectin products should not be applied or allowed to drift onto blooming plants or other non-target areas because they are toxic to bees.
- e. Paralysis by sodium channel blockers is known as tetanic paralysis.

4. Correct the underlined words in the following statements (Total 3 Marks 1 Mark each)

- a. Neuromuscular disruptors directly affect energy state.
- b. Cyromazine disrupts the growth and development of larval life stages of the order Lepidoptera.
- c. Propargite is a contact acaricide that inhibits acetylcholinesterase.

▪ Section B (Total 20 marks):

1. Write short note on the mode of action of the following insecticides (Total 15 Marks):

- a. Chitin biosynthesis inhibitors. (1 Mark)
- b. Methoprene. (4 Marks)
- c. Tetronic and tetramic acid derivative insecticides. (5 Marks)
- d. Ecdysone receptor agonists. (5 Marks)

2. Mention the various ways in which insecticides can affect ion channels. (5 Marks)

▪ Section C (Total 50 marks)

1) Complete the following sentences with the correct answers:(2 markseach; Total 10 marks).

- A.are reactive compounds that chemically modify proteins in a specific way that can affect multiple targets.
- B.is the potential for the toxicity to be realized in a specific setting or situation.
- C. Interaction between chemicals may result in an inhibition, with a smaller effect than that expected from addition of the effects of the individual chemicals are defined as.....
- D.is where insects evolve to absorb the toxin through the cuticle or gut lining although it may not be possible to prevent resistance indefinitely.
- E. Environmental studies, which are conducted mostly by pesticide manufacturers (registrants), examine.....

Final Examination of Organic chemistry for 4th year students

Selected topics in Organic chemistry

Total Assessment
marks 100

Section (A) 50 marks

A- Steroid compound (A) has molecular formula $C_{24}H_{40}O_5$. this compound have three hydroxyl group in position 3, 7, 12. the side chain of compound (A) at position 17 has molecular formula $C_5H_9O_2$. the last carbon in side chain is Carboxyl group From this information

- Draw the structure of (A)
- when we add Br_2 / H_2O to A, did the colour discharged or not? Explain your answer
- If we added Na_2CO_3 to compound (A) predict the structure of the product
- When compound (A) reacts with hydroxyl amine. Did the product obey rule of number of cyclic?

B- illustrate by chemical equations

- Ergosterol to vitamin D_2
- the degrees of unsaturation of a compounds with molecular formula $C_{15}H_{26}O$ is, $C_9H_{17}NO$ is, C_8H_5N is
- Methyl group in oesterone in position
- Retinoic acid react with cyclohexanol to form compound with molecular formule

Section (B) 50 marks

-discuss the reaction of lawesson's Reagent (LR) with each of the following (one and excess moles)

- methyl vinyl ketone
- Succinimide
- phenylacetylene
- hexanone followed by oxidation

-Show the synthesis of the followings

- Anticoagulant agent
- Anticonvulsant agents

- Giving the suitable mechanism, show the preparation of

- 2 - thiohydantoin - from glycine
- 3,5,5 - triphenol - 2 - thiohydantoin - from phenylisothiocyanate hydantoin
- 1,5,5 triphenyl 2- thio hydantion from Diphenylchlorocarboethoxymethane

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION FOR LEVEL 4 STUDENTS - SPECIAL CHEMISTRY SECTION

COURSE TITLE:	BIOCHEMISTRY 1	COURSE CODE: CH4107
DATE:	JAN. 21, 2017	TERM : FIRST
	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions:-

Q1:-

(12 Marks)

- a- Write the biochemical pathway and the overall reaction equation of the conversion of *α -ketobutyric acid* into *propionyl CoA*. (6Marks)
- b- Explain how the *Deoxycorticosterone* is obtained. (2 Marks)
- c- Explain how *Ethyl amine* is converted into *Acetaldehyde*. Write the reaction equation including both the enzyme and coenzyme. (4Marks)

Q2:-

(14 Marks)

- a- Explain how *D-Fructose-6 phosphate* can form *pyruvic Acid*. Write the biochemical pathway. (6 Marks)
- b- Give an example on a reaction catalyzed by the *L-Amino-acid oxidase*. (4 Marks)
- c- "*CAC* is the final pathway for oxidation of the fuel molecules". Write the pathway and calculate how many *ATPs* are formed. (4 Marks)

Q3:-

(12 Marks)

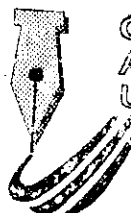
- a- Enzymatic hydrolysis of *polypeptides and proteins* gives beside free amino acids some shorter peptides. Give examples. (5 Marks)
- b- *Glutathione* plays an important role in the conversion of *α -Ketoaldehydes* into *Lactic Acid*. Explain by equations. (4 Marks)
- c- In metabolism of *B5* write the anabolic pathway. (3Marks)

Q4:-

(12 Marks)

- a- "*Ethanolic and Lactic acid fermentations* are coupled with the *glycoletic pathway*" Explain how? (4Marks)
- b- Write *two different reaction equations* to form *OAA* including the corresponding enzymes and coenzymes (4 Marks)
- c- Choose the correct answer and write the reaction equation:
The *transamination reaction* is catalyzed by: i- *Monoamine oxidase*.
ii- *Transmethylase*. iii- *Aminotransferase*. iv- *Oxidase*. (2Marks)
- d- Conversion of *Propionyl-CoA* into *D-Methylmalonyl-CoA* is catalyzed by: i- *Decarboxylase*. ii- *Transmethylase*. iii- *Carboxylase*.
iv- *Kinase*. (2Marks)

Good luck



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TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION FOR LEVEL 4 STUDENTS - SPECIAL CHEMISTRY SECTION

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iv- *Kinase*. (2Marks)

Good luck

علوم الكيمياء (كيمياء)

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	FINAL EXAMINATION for Special Chemistry & Material Science Groups			
COURSE TITLE:	POLYMER CHEMISTRY		COURSE CODE: CH 4105	
DATE:	17 JAN. 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50 DEGREE	TIME ALLOWED: 2 HOURS

- 1) Write the name and structure of monomer only for each of the following polymers: **(10 marks, 2 marks for each)**
 - a) Poly(ethylene terephthalate), PET,
 - b) Polycarbonate,
 - c) Nylon 6,10
 - d) Melamine resin,
 - e) Alkyd resin

- 2) Write the stages of **(10 marks, 5 marks for each)**
 - a) Living polymerization,
 - b) Isomerization polymerization

- 3) Write briefly on the following: **(10 marks, 5 marks for each)**
 - a) Requirements of stepwise polymerization,
 - b) Vulcanization of rubber

- 4) Write short notes on the following: **(10 marks, 5 marks for each)**
 - a) Suspension polymerization,
 - b) Ion exchange resins,

- 5) Choose the correct answers: **(10 marks, one mark for each)**
 - i) Polymerizing styrene with BuLi then adding butadiene called polymerization
 - a) condensation;
 - b) living;
 - c) ring-opening

 - ii) Bakelite is a polymer of
 - a) benzaldehyde and phenol;
 - b) formaldehyde and phenols;
 - c) formaldehyde and benzyl alcohol,

 - iii) The species which can best serve as an initiator for the cationic polymerization is
 - a) NaOH,
 - b) AlCl₃,
 - c) BuLi

 - iv) Which of the following are true regarding chain-growth polymers?
 - a) Polyamides and polyesters are this type of polymer.