TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION OF FOURTH LEVEL (SPECIAL CHEMISTRY STUDENTS)

COURSE TITLE:	(The Chemistry of glasses and ceramics)	COURSE CODE:CH4115
DATE: 22 JAN 2015	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2HOURS

Answer the following questions:

1- (i)Compare between each of the following (Chemical composition, properties, applications):

a- Soft paste porcelain and electrical porcelain (2marks)

b- Earthenwares and Stonewares.   (2marks)

c- Chrome–magnesite refractories and Silica refractories.   (2marks)

(ii) Discuss Zachariasen' s four rules for an oxide, A_mO_n, to form a glass.   (4marks)

2-(i) Explain why:

a-The addition of gypsum to Portland cement   (3marks)

b-The content of MgO is usually limited to either 4 or 5% to Portland cement. (3marks)

(ii) Define the sintering process of green body ceramics. Discuss some possible

refinements (improving) methods of the sintering process.   (4marks)

3- (i) Discuss the following(Chemical composition, properties, applications):

a- High-temperature heating elements and electrodes.   (3marks)

b- Piezoelectric ceramics   (3marks)

(ii) Discuss briefly Portland cement and its types (Chemical composition,

and applications).   (4marks)

4- (i) Discuss the structure of Sodium Aluminosilicate Glasses (draw the structure). (3marks)

(ii) Compare between partially stabilized zirconia (PSZ) and fully stabilized zirconia

(FSZ) (Chemical composition, phases, properties and applications).   (3marks)

(iii) Discuss types of additives and its properties in the Refractory processing.   (4marks)

5- (i)define by the chemical equations:

a- Two methods for the production of zirconia from the minerals zircon ($ZrSiO_4$). (3marks)

b- One method for the separation alumina or aluminum hydroxides from bauxite. (3marks)

(ii) Plot the volume as a function of temperature diagram for the liquid transitions to a

solid in glass formation. (define(4marks)

Good Luck

Examiner: Prof.Dr: M.H.Shaaban

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY	
	FINAL EXAM FOR CRDIT HOUR STUDENTS	
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

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

15 Jan, 2015
Time allowed: 2h
Course No.: **CH 4105**

Final Examination for Level 4 (Chemistry & Materials Science)
Organic Chemistry: Section Polymer Chemistry

Write briefly on **Five** Questions of the following:

Question 1:
a) Characteristics of condensation polymerization.
b) Preparation of Phenol-formaldehyde resins.

Question 2:
a) Preparation of alkyd resins.
b) Techniques of condensation polymerization.

Question 3:
a) Characteristics of addition polymerization,
b) Preparation of aliphatic polyamides,

Question 4:
a) Preparation of block copolymers,
b) Isomerization polymerization,

Question 5:
a) Types of initiation in free radical polymerization.
b) Suspension polymerization,

Question 6:
a) Stages of free radical polymerization,
b) Cationic polymerization.

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION OF FOURTH LEVEL (SPECIAL CHEMISTRY STUDENTS)

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b- One method for the separation alumina or aluminum hydroxides from bauxite. (3marks)

(ii) Plot the volume as a function of temperature diagram for the liquid transitions to a

solid in glass formation. (define(4marks)

Good Luck

Examiner: Prof.Dr: M.H.Shaaban

	TANTA UNIVERSITY
	FACULTY OF SCIENCE
	CHEMISTRY DEPARTMENT
	FINAL EXAM FOR SENIOR STUDENTS (MATERIALS SCIENCE SECTION)
COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH41?5)
DATE: JAN 04, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions:

(1) Write in details the chemistry and composition of Crude oil. (20 marks)

(2) Sketch the plan of synthesis which must be taken in drug design. (15 marks)

(3) Give a brief notes on the types of dyes used in textile industry. (15 marks)

(4)- Select the right answer of the following: (10 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. Specialty chemicals are --------------value
      a) very high   b) high   c) low   d) small
   IV. ---------in the top ten BIC
      a) Ethylene   b) sulphuric acid   c) hydrogen   d) propylene
   V.   For production of sulphuric acid use ----------proportion of oxygen
      a) Even higher   b) small   c) medium   d) excess

(5) Give the reason of the following: (15 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. HOCl is only exit in solution.
   V.   The catalyst use for manufacture of H_2SO_4.

(6) Complete the following sentences: (15 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.   Hydrogen peroxide used in-----------,------------------

(7) Compare between the following: (10 marks)
   I.   Thermal and wet process for manufacture of phosphoric acid
   II. Commodity and fine chemicals

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

Final Examination of Organic chemistry for 4th year students

Selected topics in Organic chemistry

<u>Section (A)</u>   **50 marks**

> Total Assessment
> marks 100

Answer the following questions :

1-) Discuss the reaction of Lawesson's reagent (LR) with:

    a-) Ethylene glycol (1:1 mole & excess)   b-) CH_3MgBr followed by hydrolysis

    c-) methylvinylketone   d-) excess of anthranilic acid

2-) Give a short account with examples (Name all products)

    a-) Chemistry of 1,3,4-oxadiazales   b-) Chemistry of 2-Thio-hydantoin

    c-) Nucleosides from deoxysugers   d-) Antiviral agents

<u>Section (B)</u>   **50 marks**

1- A) An alkaloid compound

    a-) suggest its structure on the basis of the following evidencies: insoluble in aqueous NaOH but soluble in aqueous HCl. It does not react with benzene sulfonyl chloride but it reacts with phenylhydrazine to yield aphenylhydrazone.

    b-) make oxidation for this compound followed by decorboxylation . (name all the new compounds)

   B) Define each term and give an example

    a-) HVZ reaction .

    b-) Hoffmann exhaustive methylation .**(Take pyrrolidine as example)**

   C) complete the following sentences :

    a-) Type of hydroxyl group in lupinine is ………………

    b-) Oxidation of tropine gives ……………..

2-A) Show the products of the reactions of these carboxylic acids with PBr_3/ Br_2 followed by hydrolysis :

    a-) propanoic acid   b-) succinic acid   c-) benzoic acid   d-) oxalic acid

B) propose a mechanism for the reaction of methylcyclohexylketone with excess of iodine in the presence of sodiumhydroxide .

C) vitamin B_1 is decomposed into two compounds (A) and (B) when treated with sod.sulphite solution with SO_3 gas from this information , Show :

    a-) The direct oxidation of compound (A) with HNO_3 give ……………

    b-) Heating of compound (B) with HCl at 150°c yields ………………and ……………

    c-) DiD Compound(B) contain amidine structure . **prof this ?**

     Dr. Mohamed Hamed   **Prof. Dr. Ahmed El-Barbary**

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY   C H

EXAMINATION FOR (SENIORS) STUDENTS OF CHEM/BIOCHEM SECTION

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

Final Examination for Level 4 (Chemistry & Materials Science)
Organic Chemistry: Section Polymer Chemistry

Write briefly on **Five** Questions of the following:

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a) Characteristics of condensation polymerization.
b) Preparation of Phenol-formaldehyde resins.

Question 2:
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b) Suspension polymerization,

Question 6:
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b) Cationic polymerization.

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

INCOMPLETE EXAMINATION FOR CRDIT HOUR STUDENTS

| COURSE TITLE: LASER CHEMISTRY | | | COURSE CODE: CH4113 |
| DATE:23 JANUARY, 2014 | TERM: FIRST | TOTAL ASSESSMENT MARKS: 50 | TIME:2 HOURS |

Answer the following questions (5 marks per point):

1- Using suitable diagrams and illustrations, describe each of the following laser systems:

i – Carbon dioxide laser

ii - Excimer laser

iii- Proton transfer dye laser

iv- Bonding in molecular oxygen O_2 and its first two excited states according to molecular orbital theory.

v- Construct the energy level diagram of species in a typical triplet sensitization experiment in which a mixture of naphthalene and benzophenone was irradiated through a 315 nm cut – in filter given the following absorption data:

For naphthalene $S_o \longrightarrow S_1$ at 385 nm and $S_o \longrightarrow T_1$ at 465 nm.

For penzophenone $S_o \longrightarrow S_1$ at 385 nm and $S_o \longrightarrow T_1$ at 413 nm.

The cut-in filter that absorbs below 315 nm. [Hint: The energy in k cal mol^{-1} is obtained as $28500 / \lambda$ (nm)]

2- The synthesis of vinyl chloride from 1,2-dichloroethane is an important multibillion industrial process demonstrating the advantages of laser applications. Write the reaction scheme and mention the advantages of laser application in comparison with thermal applications.

3- The technique of thermal lensing is an important application on laser collimation. Draw a time- resolved thermal lensing experimental setup and trace upon using the technique to study singlet oxygen sensitization kinetics.

4 - Discuss each of the following:

(a) The technique of Raman spectroscopy showing energy level diagram, the spectral output and band assignment.

(b) The principal of MUCAP reagent operation

(c) Oxygen sensors based on fluorescence quenching

(d) Photodynamic therapy (PDT)

5 - Explain the reason for each of the following:

(a) Carbonyl compounds are common triplet sensitizers

(b) R6G-I^- solutions are strongly fluorescent in ethanol but non-fluorescent in chloroform.

EXAMINER: PROF. DR. EL-ZEINY MOUSA EBEID

Tanta University	Modern reagent and reaction in organic chemistry		
Faculty of Science	First Term	Course code: CH4125	
Chemistry Department	January 2014	Total Assessment Marks: 100	
Chemistry fourth year		Time allowed: 2 Hours	Date : 11/1/2014

1- Suzuki, Buchwald- Harwtig and Chan-Lam are organic reactions that are classified as coupling reaction.

i- Describe this sentence with one example and proposed mechanisms.

ii- Stereochemistry in Suzuki reaction.

iii- Similarity and differentiation between the mentioned reactions.

2- An oxime is an intermediate in the industrial production of caprolactam, a precursor to Nylon 6.

i- Explain how cycleooxime converted to lactam by different reagents with proposed mechanism

3- The isocyanate can be trapped by a variety of nucleophile.

i- How can converted acylazide, primary amine and O-acylated hydroxamic acid into isocynate with proposed mechanism

ii- Addition of H_2O, R-OH and R-NH_2 as nucleophile reagents to isocyanate.

4- Describe these sentences with examples and proposed mechanisms.

i-The gradual development of the **reagents** and **conditions** play an important rule in Vilsmeier- Haack synthesis.

ii-Duff and Sommelet reactions are organic reactions used hexamine as the formyl carbon source

Tanta university

Faculty of science, Chemistry Department

Final examination for students of level 4 (chem. sect.) and

Level 4 (golo.sect.) and bio chem..section)

Course Title :Textile chemistry	Course code : CH4124

Total Assessment marks : 50　　　　　　　　Time allowed : 2hrs

Answer the following questions :

1- Write an account on each of the following :

　　a- Polyamide fibers and compare and contrast the chemical, physical and mechanical properties of nylon 6,6 with those of aramids fibers .

　　b- Polyester fibers .

2- a- discuss the concept of grafting as a means of altering the properties of the original homopolymer. illustrate your answer with examples

b- Cross linking of cellulose and regenerated cellulose for crease resist and permanent press treatments .

3- Write an essay on the structural feature of wool-keratin and silk-fibroin .

Compare the chemical , physical and mechanical properties of wool with those of silk .

4- Write an account on each of the following :

　　a- The chemistry of cellulose and show the effect of crystallinity on its properties .

　　b- Regenerated cellulose rayons

　　c- Chemically modified cellulosic fibers

Examiner : prof.Dr. F.E.Abdelhay

e

Tanta University	Industrial chemistry		
Faculty of Science	First Term	Course code: CH4123	
Chemistry Department	January 2014	Total Assessment Marks: 100	
Chemistry fourth year		Time allowed: 2 Hours	Date : 8/1/2014

(1)– Discuss one of the following   **(10 marks)**

a) The manufacturing process of H_2O_2

b) The Structure of the Global Chemical Industry(commodity, Specialty and fine)

(2)- Correct the following sentences: **(12 marks)**

a) NaOCl use as indicator   b) In Shift Conversion, the carbon is converted to

carbon dioxide   c) White phosphorus use in industry of glass

(3)- Select the right answer of the following   **(10 marks)**

    a) The raw materials of HOCl are

1- $Cl_2 + NaOH$ 2- $Cl_2 + H_2$ 3- $Cl_2 + H_2O$

b) The raw material of hydrogen production from Partial oxidation process is

1- methane   2-cyclohexane   3-sulphoric acid

c) The raw materials of manufacturing ammonia are

1- Air, water and oxygen.   2- Air, water and, hydrocarbons.

3- Air, nitrogen and, hydrocarbons.

d) The raw material of manufacture of white phosphorus is

1- calcium phosphate   2- barium phosphate   3-cadmium phosphate

e- Phosphoric acid react with NaOH forming

1- one salt   2- three salts   3-two salts

(4)- complete the following sentences   **(18 marks)**

a) Desulphurization process is …………………………..

    b) Equation of phosphoric acid manufacture from wet process is…………………….

    c) The application of ammonium phosphate is…………….

    d) The reaction in primary reforming for manufacture of ammonia is……..

    e) One of current global hydrogen production is………………….

    g) White phosphorus is chemically active because…………

(5)- Explain briefly the synthesis of the following: **(50 marks)**

    a- Poly vinyl chloride from ethane

    b- Poly styrene from benzene

    c- Cellulose acetate from methanol

    d- Rubber from crude oil

(6) a- Give a brief classification for the types of detergents with examples.

    b- The structure of the liquid detergent shampoo, soap and non ionic detergent

    c- Preparation of synthetic detergents

    d- Powder detergent manufacture.

	Tanta University	
	Faculty of Science	
	Chemistry Department	
	Examination for (Credit hours) Students	
Course Title	Pesticides	Course Code: CH4119
Date: January 2014	Total Asssessment Marks: 50	Time Allowed: 2 hrs

I) Mark (√) for the write and (×) for the wrong statements and please correct the wrong one (10 M):

1. Cryolite is injure plant life, while most of fluorides and fluosilicates are safer.   (   )
2. Bentazon, bromacil and chloramben are examples of insecticides.   (   )
3. Systematic poison depends on contact of pesticide with the pest.   (   )
4. Bordo mixture is a mixture of copper oxide and calcium sulfate.   (   )
5. β-Isomer of gammexane is the most toxic isomer to the insect.   (   )

II) Choose the correct answer and please write the full chemical equation (10 M):

1. Dehdrochlorination of DDT followed by hydrolysis gives:

   a) DDA   b) Dicofol   c) Methoxychlor

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 sulphoryl chloride on chlordene in benzoyl peroxide follwed by oxidation gives:

   a) Chlordane   b) Heptachlor epoxide   c) Endrin

4. Action of Grignard reagent on p,p-dichloro benzophenone followed by treatment with H_2SO_4 gives:

   a) bis(p-chlorophenyl)propene   b) bis(p-chlorophenyl)ethene   c) bis(p-chlorophenyl)methane

II) Write the chemical structure and IUPAC name of the following pesticides (10 M):

1. Anabasine   2. Bentazone   3. DDA   4. Bromacil   5. Paris Green

IV) Carry out the following conversions (10 M):

1. 3-Cyano pyridine into nornicotine.   2. Dicofol into chlorobenzilate.

3. Ethyl alcohol into DDT.   4. Cyclopentadiene into aldrin.

V) Write briefly about each of the following (10 M):

1. Theories explain structure activity relationship of DDT.   2. Insecticidal action of nicotine.

3. Sulfer compounds as inorganic insecticides.   4. Pharmaco kinetics of chloramben.

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

Tanta University	Faculty of Science	Chemistry Department	
examination for level - 4 students		Chemistry Section	
Course Title:	Biochemistry 1		Course Code: CH4107
Jan. 2014	Term: first term	Total Marks: 50	Time allowed: 2 hrs.

Answer the following questions:-

1)- Give an example with the equation on each of the following enzymes including the corresponding coenzyme:-   (15 Marks)

a- Disaccharidases.   b- Methyltransferase.   c- Peroxidases.
d- Dehydratases.   e- Epimerases.

2)- Write *only* the reaction equation including enzyme and coenzyme of each of the following reactions: (9 Marks)
a- The decarboxylation of α-ketoglutaric acid by TPP.
b- Oxidation of Glucose-6-phosphate into Gluconic acid-6-phosphate.
c- Lactic acid into Pyruvic acid.

3)- Explain the mode of action of BCCP in the synthesis of Succinyl CoA. (6 Marks)

4)- PLP functions in the biosynthesis of Neurotransmitters, Give examples. (8 Marks)

5)- FMN plays an important role in the conversion of Glutamic acid into α -ketoglutate and ammonia. (6 Marks)

6)- "Acetyl CoA acts as a nucleophile and as an electrophile" Write the reaction with OAA, Choline and the formation of acetoacetyl CoA . (6 Marks)

GOOD LUCK

Dr Yehia A. Hafez

Tanta University   **Time allowed: 2 hours**
Faculty of science   **Date: 28/ 12/ 2013**
Chemistry Department

Final examination of fourth level students (C.H.) section:
(Chemistry and Chemistry/Biochemistry)
Statistical thermodynamics
CH4111

<u>**Answer all questions:**</u>

1-a) Discuss the relationship between entropy and probability.

b)

I	1,2,3 4,5,6		
II	1,3	4,6	5,2

The above diagram shows two "macrostates", I and II.
Calculate the number of "microstates" corresponding to both "macrostates" I and II.

2-a) Calculate the average energy for triatomic linear and nonlinear molecules.

b) Discuss the barometric formula.

3- Discuss Boltzmann distribution law.

4-Discuss the absolute reaction rate theory.

Answer the following questions:

1. Discuss types of free radical initiators

2. Define thermoplastics and thermosets Polymers

3. Describe the synthesis of polyesters and polyamides

4. Describe the Interfacial polymerization.

5. Explain the theory and the mechanism of suspension polymerization technique.

6. Anionic polymerization

7. Classification of polymers by applications, give examples

8. Explain how you can synthesize the Melamine Polymers.

مع تحياتى

ا.د :الرفاعى قناوى
استاذ كيمياء البوليمرات

Tanta University Faculty of Science Chemistry Department	Water treatment		1969
	Course code: CH4127	First term	
Exam for Level Four	Time allowed: 2 Hours Total Assessment Marks: 50		Date: 18/1/2015

Answer the following

Discuss the following :   [30 marks]

1. Removal of iron and manganese from the wastewater   [6 marks]
2. The several processes are used for softening water   [6 marks]
3. Removal of dissolved organics from the wastewater   [6 marks]
4. Removal of dissolved inorganics from the waste water   [6 marks]
5. The nitrogen cycle and its rule in water quality   [6 marks]

Complete the following: [10 marks]

1. Inthe municipal water treatment , the raw goes to an aerator to remove .... and ....
2. The addition of lime as CaO or $Ca(OH)_2$ after aeration raises the pH and results in ....
3. Primary waste treatment includes ...., ..., ..., and ....
4. The sludge digestors has .... and ....to digested sludge .
5. The activated sludge process, is an effective of all wastewater treatment processes. Microorganisms in the aeration tank convert organic material in wastewater to........
6. In water treatment the organic phosphorus is converted to ....
7. Secondary wastewater treatment is designed to remove ....

Choose the correct answer   [10 marks]

1. The most common couses of the changes in the pH of solution:
   - a) CO_2
   - b) Phosohours poluttants
   - c) Dissoloved metals
   - d) Hardness of water

2. Alkalinity of water is often a good indicator of
   - a) The total dissolved inorganic carbon
   - b) Dissolved materials
   - c) Redox potential
   - d) Dissolved organic carbon

Tanta University
Faculty of Science
Chemistry Department
Examination for forth Year Students

Course Title: Chemistry of Textile		Course Code:CH4121
Date: January 2015	Total Assessment Marks: 50	Time Allowed: 2 hrs

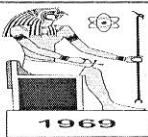## 1) Differentiate between each of the followings: (25 Mark)

1. Natural and man-made fibers.

2. Effect of acids, bases, oxidizing agents, Reducing agents, sunlight, heating on wool and silk.

3. Strength, resiliency, solubility, and heat conducting properties of Nylons and Aramid.

4. Abrasion, dyeing, laundering, drying, ironing properties of acrylic and modacrylic fibers.

5. Preparation of Nylon 6 and Nylon 6, 6.

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

1. Nylon is an example of regenerated fibers. ( )

2. The Secreted fibers are proteins of highly crosslinked by disulfide bonds from cystine residues in the protein chain. ( )

3. Wool is soluble in all solvents except those capable of breaking the disulfide crosslinks, but it does tend to swell in polar solvents. ( )

4. Silk exhibits good heat insulating properties and is little affected by heat up to 150°C. ( )

5. The aramids are difficult to dye except by special dyeing techniques with disperse dyes. ( )

6. Nylon 6 and 6,6 are highly resistant to chemical attack. ( )

7. The acrylic fiber has excellent stiff and moderate resiliency. ( )

8. Modacrylics are resistant to attack by household chemicals and have excellent sunlight resistance. ( )

9. Polyester is highly attacked by acid, bases, oxidizing, or reducing agents. ( )

10. Polyester has good laundering and dry-cleaning characteristics. ( )

تابع الأسئلة فى الصفحة القادمة

Tanta University Faculty of Science Chemistry Department	Water treatment		1969
	Course code: CH4127	First term	
Exam for Level Four	Time allowed: 2 Hours Total Assessment Marks: 50		Date: 22/1/2014

1. What are the two processes by which the activated sludge process removes soluble carbonaceous material from sewage? **[4 marks]**

2. Discuss the nitrogen cycle and its rule in water quality. **[5 marks]**

3. Explain removal of dissolved inorganics **[5 marks]**

4. "Carbon dioxide plays a fundamental role in determining the pH of natural waters". Comment on the statement. **[5 marks]**

5. Explain removing of solids using filtration and coagulation-filtration. **[4 marks]**

6. Show with chemical reactions how lime treatment and sulfide treatment are used to remove heavy metals from water. **[5 marks]**

7. Give one major advantage and one major disadvantage of using ozone dioxide for water disinfection. **[2 marks]**

Complete the Following: **[20 marks]**

1. The major categories for water treatment are.....................

2. Primary treatment of water is designed to remove........................

3. Chlorine dioxide is of particular interest for water disinfection because it does not produce ....

4. Tertiary waste treatment normally is applied to .... and the three general kinds of contaminants that it removes are...............

5. Clean rainwater has a pH of about 5.7 because of dissolved ......

6. Biological oxygen demand (BOD) refers ....
Chemical oxygen demand (COD) refers to ....

7. Sources of water impurities are (1)..... and (2)...........