	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR CRDIT HOUR STUDENTS		
COURSE TITLE:	LASER CHEMISTRY (CH4113)		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)

(i) The principle components of a laser are: .....

(ii) The four main characteristics of a laser beam are: .....

(iii) The Advantages of proton transfer dye laser are: .....

(iv) In ruby laser, the host material is ..... and Gust is .....

(v) In Titanum sapphire laser, the emission result from ..... transition and chemical laser gives laser emission in .....region

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

(i) Lifetime of electronically excited states

(ii) Photo-toxic drugs

(iii) Energy transfer dye laser system

(iv) Aflatoxine Analysis

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

(i) Benzophenone is a good triplet sensitizer to naphthalene

(ii) Excitation spectroscopy is useful than the absorption spectroscopy

(iii) 1,4 – bis(β-pyridyl-2-vinyl)benzene (P2VB) is good laser dye than 2,5-distyrylpyrazine (DSP)

(iv) $HClO_4$ is used to acidify dye laser instead of HCl

(v) 4- Methylumbelliferyl caprylate (MUCAP) reagent is used to detect the salmonella

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

(i) Energy levels in salicylamide as a proton transfer dye laser

(ii) Energy levels in Argon ion laser

(iii) Energy levels in excimer laser

(iv) Energy levels in He – Ne laser

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

(i) Define the ground and excited states of molecular oxygen

(ii) Explain the mechanism of photodynamic therapy by singlet oxygen

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

(i) Give the chemical structure of coumarine and oxazine laser dyes

(ii) Suggest the spectral region output for : Xanthene dye, diolefinic dye, and coumarine dye

Tanta UNIVERSITY, Faculty of Science, Department of Botany				
EXAMINATION FOR SENIORS STUDENTS Of CHEMISTRY/BOTANY				
COURSETITLE:	Bacteriology		COURSE CODE: MB4133	
DATE: 22-1-2017	JANUARY, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2HOURS

Answer the following questions:

1-Complete the following: (15marks)

a- Capsule functions are …,…,…,…,……

b- Single specific origin of DNA replication in bacteria called…

c- Bacterial growth in batch culture divided into 4 stages … ……

d- Generation time ……………………………………

e- Enzymes involved in DNA replication are…..,…..,…..,….

2-Compare between the following: (20marks)

a- cell mass and cell number detection of bacterial growth by

b- pilli and flagella

3- Mention how differences in bacterial cell wall structure differentiate bacteria into Gram+ve and Gram –ve (20 marks)

4-Discus conjugation in Gram – bacteria , swimming movement (15 marks)

5-Identify the following: chemostate, transformation, Synchronous Growth(15marks)

6-Mention different applications of bacteria (15 marks)

Best wishes

Examiners: Dr. Nanis G. Allam, Dr.Samya Shabana

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TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
EXAMINATION FOR SENIOR (LEVEL FOUR) STUDENTS OF GEOLOGY			
COURSE TITLE:	HYDROGEOLOGY 1		
DATE: JAN, 2017	TERM: FIRST		TIME ALLOWED: 2HOURS

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible).

1- Write on of the followings: **(20 Marks)**

a-Drainage systems.

b- Climate change effect on the water cycle

2- What iswell efficiency and how it could be determined using two different pumping test methods. **(25 Marks)**

3- Discuss the following in details: **(25 Marks)**

a- Aquifer, confined and unconfined aquifer, isotropic and anisotropic aquifer, and homogeneous and heterogeneous aquifers

b- Depression cone

4-Explain the difference between the followings: **(20 Marks)**

a- Elevation head, pressure head, hydraulic head and depth to water.

b- Steady and unsteady pumping test conditions.

c- Storage coefficient in confined and unconfined aquifers

4-Write short notes on groundwater flow net. **(10 Marks)**

EXAMINERS	DR. ZENHOM SALEM	

	Tanta University Faculty of Science Department of Zoology			
	Exam for senior students of Chemistry and Entomology			
	Course title:	Ecology of fresh water insects		Course code: EN 4149
DATE:	January, 2017	Term: first	Total marks:100	Time allowed: 2 hours

Answer the following questions in your answer booklet:

Part I

1. **Choose the correct answer from between the brackets (Total 15 Marks):**
   1.1. Freshwater has (less than – equal – more than) 1% salt concentration.
   1.2. The (littoral – limnetic – profundal) zone is warm and well-oxygenated, so that aquatic insect is diverse and abundant.
   1.3. Near the (headwater – river mouth – river middle), mosses anchor themselves to rocks by using root-like structures called rhizoids.
   1.4. Much care should be considered before impounding a river to create (swamps – estuary – factories).
   1.5. Aquatic insect assays are used to study (pesticide effect – resistance - mode of action - all of these).
   1.6. (Bogs –ponds – marshes) are shallow with little open water, highly acidic, no nutrients, mossy.
   1.7. (Lake – pound - wetland) is an ecosystem in which water covers the soil at least part of the year.
   1.8. (Rivers – lakes – Oceans) have several zones such as intertidal, pelagic, abyssal and benthic.
   1.9. Small streams that alternately have swift, rocky segments are called (riffles – pools).
   1.10. (1/2 – ¼ - ¾) of the Earth's surface is covered with water.

2. **Fill in the blanks with the appropriate words (Total 18 Marks, each blank 1.5)**
   2.1. Freshwater ecosystems include lotic, ... and temporal.
   2.2. Zooplanktons are small ..... or metazoans that feed on other .....
   2.3. .....act as filters, because they absorb and remove pollutants from the water that flows through them.
   2.4. Five species of the genus *Halobates* live on .....
   2.5. Chemical analysis give.....information on the water quality.
   2.6. .....are autotrophic prokaryotic or eukaryotic algae that live near the water surface where there is sufficient light to support .....
   2.7. Nekton refers to the actively swimming aquatic organisms in a body of water, such as .....and .....
   2.8. ..... are coastal wetlands that occur in bays and estuaries across tropical and subtropical regions.
   2.9. Estuaries are sometimes called ..... habitats for many juvenile organisms, especially for fishes.

3. **Indicate if the statements are true or false with correction (Total 15 Marks):**
   4.1. Bogs, marshes and swamps are lentic ecosystems.
   4.2. Lakes may exist for hundreds of years or more.
   4.3. Swamps are deep and open water include large trees and shrubs.
   4.4. Saltwater swamps are the ideal habitat for many amphibians, such as the frogs and salamanders.
   4.5. Measurements of the richness and diversity of aquatic insect species provide information about the chemical and physical characters of their environment.
   4.6. Insects found in depositional lotic environment are burrowers and clingers.
   4.7. Plants and animals in freshwater regions are adjusted to the low salt content.
   4.8. Fjords occur when the rising seas invaded low-lying coastal river valleys.
   4.9. Stressful conditions and abundant nutrients in estuary result in high species diversity, but low abundance of the species present.

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	FOURTH YEAR (CHEMISTRY \ MICROBIOLOGY) &(Special Microbiology)FINAL EXAM.			
	COURSE TITLE:	Yeast biology		COURSE CODE: MB 4101
DATE: 22/1/	January. 2017	TOTAL ASSESSMENT MARKS: 100	TERM: FIRST	Time allowed: 2 hours

Answer the following questions with drawing if possible:-

I- Discuss briefly from the following: 30 Marks

a- Classification of the imperfect yeasts.

b- Clamp connections in yeasts.

II- Choose one answer: 10 marks

1- *Candida* is an imperfect yeast causes:

a. Cryptococcosis b. Candidiasis c. Tinea d. Non of the above

2- Fimbriae are involved in :

a. Sexual conjugation- b. Flocculation- c. Asexual reproduction- d. Sexual conjugation & Flocculation

3- Clamp connections found:

a. Ascomycetes yeasts b. Basidiomycets yeasts c. Imperfect yeasts d. All of them

4- Genomic libraries consist of:

a. Large number of *E.coli* clone each of which bearing a particular recombinant plasmid.

b. Large number of *Candida albicans* clone each of which bearing a particular recombinant plasmid.

c. Large number of *Candida albicans* and *E.coli* clone each of which bearing a particular recombinant plasmid.

d. Non of the above

5- The cell wall coponents are :

a. glucans- b. Chitin -c. Chitin and Amino sugars d. All of the above

See next page

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR LEVEL FOUR STUDENTS (SEMESTER 1) OF BIOCHEMISTRY, BOTANY, MICROBIOLOGY, ZOOLOGY, AND GEOLOGY			
	Course Title:	BIOINORGANIC CHEMISTRY		Course Code: **CH4159**
DATE	29.12.2016	TERM: Summer	Total assessment marks: 50	Time Allowed: 2 HOUR

I- Write the scientific term of each of the following: (8 marks)

1. A copper containing plasma protein that converts iron to a form that can be transported and stored.
2. Iron regulatory hormone.
3. An inherited condition that causes individuals to absorb and accumulate too much iron.
4. A decrease in plasma potassium level below 3.5 mmol/L.

II- Determine the biological function(s) of each of the following elements: (10 marks)

1- Calcium 2-Potassium 3-Iron 4-Magnesium 5-Chlorine

III- Complete each of the following: (16 marks)

1- Metal toxicity is ----------
2- The most widely used radiotracer is ----------
3- ---------- is a metal-based drug that is used to improve symptoms of rheumatoid arthritis.
4- Hyperparathyroidism usually causes an increase in ---------
5- The active transport of glucose is coupled to the transport of---------inside the cells.
6- Active export of platinum from the cells occurs through ---------- and -------
7- ---------- and ---------- are among the disadvantages of cisplatin
8- Cytotoxic actions of anticancer gold complexes are ---------- and most likely rely on ----------

IV- Choose the correct answer: (16 marks)

1- The stimulus for release of PTH is

a- High calcium levels in the blood.
b- Low calcium levels in the blood.
c- PRH.
d- Nerve stimulation from hypothalamus.

2- Chronic toxicity is characterized by

a- Large exposures to a toxicant
b- Immediate appearance of symptoms

جميع الشعب المزدوجة

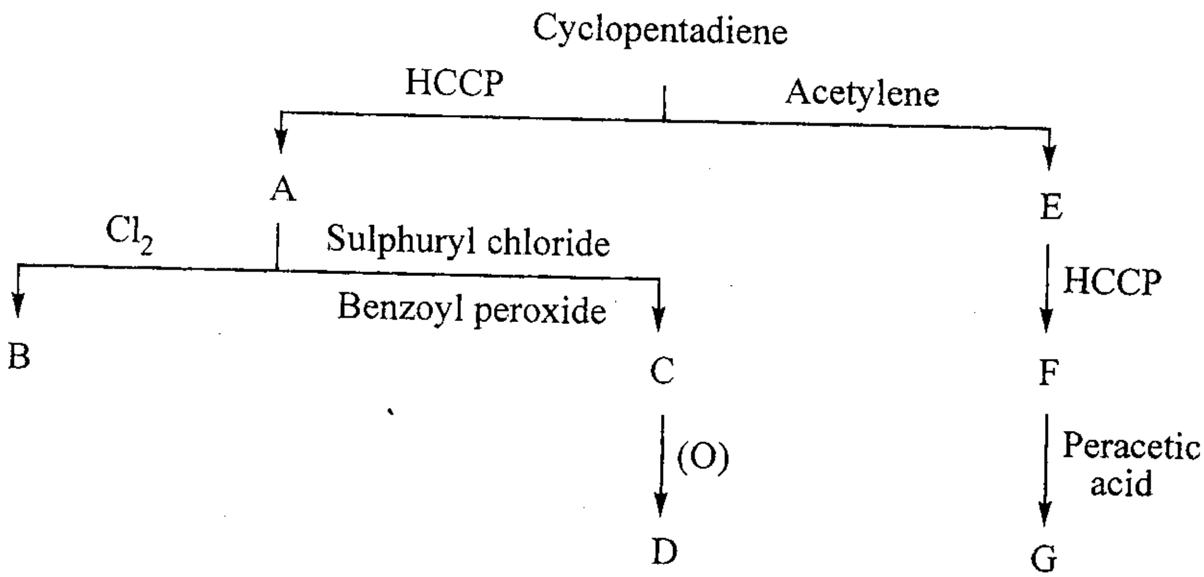
	Tanta University, Faculty of Science, Chemistry Department		
	Examination for Fourth Level (Credit Hours) Students		
	Course Title	Chemistry of Pesticides	Course Code: CH4119
Date:	January 2017	Total Assessment Marks: 50	Time Allowed: 2 hrs

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

a) Metabolism of N-methyl carbamate derivatives of oxime.

b) Models for liquid and solid pesticides formulation. (نماذج لصور مستحضرات المبيدات السائله والصلبه).

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



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

a) Nicotin
b) Trialkyl tin hydroxide
c) Sodium fluosilicate
d) Malathion
e) Bis-(*p*-chlorophenoxy) methane

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

a) DDT —alcoholic KOH→ **H** —CrO_3→ **I**

b) Trichloro acetaldehyde + Anisole → **J** —aqueous KOH→ **K**

c) Carbofuran —N-methyl hydroxylation→ **L** —Oxidation→ **M**

d) Diethyl chloro thiophosphate + sodium-*p*-nitro phenolate → **N** —c.HNO_3→ **O**

e) 4,4`-dichlorobenzophenone + methyl magnesium bromide —H_3O^+→ **P** —c.H_2SO_4→ **Q**

V) Carryout the following conversions (10 Marks):

a) 4-Chloro benzaldehyde to Prolan.
b) Dicofol to ethylchlorobenzilate.
c) Cyclohexene to 1,2,4-trichlorobenzene.
d) Triethyl phosphate to diethyl phosphoric acid.
e) Sec-amine to zinc dialkyl dithiocarbamate.

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, ***With Best Wishes,*** ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

Dr. Mohamed Azaam ***Dr. Atif El-Gharably***

Prof. Dr. El-Refaie Kenawy

جميع الشعب المزدوجة

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (DOUBLE MAJORS)		
COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4155)		TIME ALLOWED: 2 HOURS
DATE: JANUARY 03, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	

Question 1: (25 Marks)

i- Choose the correct answer: (10 Marks)

1 -The dyes which are used in reduced state and are then oxidized in the fabric by air are called..... (Give example)

a- Azo dyes b- Disperse dyes c- Basic dyes d-Vat dyes

2-Sulpha thiazol drug is..... (write the structure)

a-4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonamide

b-4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonic ester

c- 4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonic acid

d- 4-Acetamido-N-(1,3-thiazol-2-yl)benzenesulfonic acid

3 -Which among the following is antibiotic? (Write the structure)

a- Sulpha drugs b- Penicillin c-Alpha-eucaine d- Pethidine

4-Soap can be converted into the fatty acid by adding..... (Write the equation)

a- Strong mineral acids b- Organic acid c- Sodium hydroxide d- Oxygen

5 -Which of the following is used as feedstock for the methanol industry? (Explain your answer)

a- Methanol b- Acetic acid c- Methane d- Ethanol

ii- Complete the following sentences: (7 Marks)

a- The common physical properties of such oils and fats are that they ..... on water but are not soluble in it and they are ..... to the touch.

Please turn over

Examiners: Prof. Hala Fawzy
Dr. Abd Elbasit Shokr
Prof. Nadia Elwakeel
Dr. Wael A. Amer

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SENIOR STUDENTS (CHEMISTRY AND MATERIALS SCIENCE SECTIONS)		
	COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4123)	TIME ALLOWED:
DATE: JANUARY 03, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	2 HOURS

Question 1:

i- Choose the correct answer: (10 Marks)

1 -The dyes which are used in reduced state and are then oxidized in the fabric by air are called..... (Give example)

a- Azo dyes b- Disperse dyes c- Basic dyes d-Vat dyes

2-Sulpha thiazol drug is..... (Write the structure)

a-4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonamide

b-4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonic ester

c- 4-Amino-N-(1,3-thiazol-2-yl)benzenesulfonic acid

d- 4-Acetamido-N-(1,3-thiazol-2-yl)benzenesulfonic acid

3 -Which among the following is antibiotic? (Write the structure)

a- Sulpha drugs b- Penicillin c-Alpha-eucaine d- Pethidine

4-Soap can be converted into the fatty acid by adding..... (Write the equation)

a- Strong mineral acids b- Organic acid c- Sodium hydroxide d- Oxygen

5 -Which of the following is used as feedstock for the methanal industry? (Explain your answer)

a- Methanol b- Acetic acid c- Methane d- Ethanol

ii- Complete the following sentences: (10 Marks)

a- The common physical properties of such oils and fats are that they ..... on water but are not soluble in it and they are ..... to the touch.

b- Direct dyes is normally carried out in a ..... or slightly..... dye bath, with the addition of either ..... or ..... or ..... Direct dyes are used on..... Fiber.

c- Iodine value of oil is ....., while saponification number is.....

Please turn over

Examiners: Prof. Hala Fawzy Prof. Nadia Elwakeel

TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT CHEMISTRY – BIOCHEMISTRY SECTION				
EXAMINATION for level 4 Semester 1 (4thd Year) students Biochemistry				
COURSE TITLE:	Drug metabolism			COURSE CODE: BC44115
DATE: 3/1/2017	JANUARY, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIMEALLOWED:2 HOURS

ANSWER ALL THE FOLLOWING QUESTIONS

I-Clarify each of the following: (20 Marks)

1. Sites of Drug Metabolism
2. Bodor theory of prodrug site specificity.
3. Important of random screening in soil and how programmed screening identify the drug.
4. Glucuronidation conjugation in drug metabolism.
5. Oxidation is an important reaction for drugs metabolism.
6. Carrier prodrugs
7. Advantages and disadvantages of plant and microbial sources of drug.

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

1- Drug action
2- Bioavailability
3- Pharmacophore
4- Partition coefficient
5- Shelf-life

III- Answer of the following questions: (20 Marks)

1. Discuss the rout of drug transportation.
2. Write the general reason of drug resistance.
3. How could differentiate between pharmaceutical and physiological classification?
4. Why do organic medicinal agents (OMAs) need to have hydrophilic and hydrophobic groups?
5. Write the side effect of aspirin and paracetamol.
6. How could we avoid hydrolysis of drug from gastric fluid?

Examiners	Prof. Dr/ Tarek Mostafa Dr/ Abeer khamis

	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) <u>Mark (√) or (×) and correct the wrong statement:</u> **(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 فى الصفحة القادمة

د/ اسكندر / د/ وائل عمر / علوم المواد / د/ جيولوجيا / د/ طبيعة / د/ علم الحيوان
د/ علم الحشرات

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	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF CHEMISTRY		
	EXAMINATION FOR DUAL SPECIALIZATION STUDENTS		
	Course Title	SOLID STATE CHEMISTRY	Code: CH 4143
10/1/2017	1st term	Total Assessment Marks: 50	Time: 2 *hrs*

Answer the following questions:

(A) Select the proper choice from the given multiple choices: (10 *marks*)

1. What is the number of atoms in the unit cell of body centred cube?
   a) 1 b) 2 c) 4 d) 6
2. Which of the following compounds shows metal deficiency defect?
   a) $Fe_{0.95}O$ b) $Fe_2O_{3.6}$ c) Fe_3O_4 d) $FeS_{1.6}$
3. Percentage of free space in a face centred cubic unit cell is:
   a) 74% b) 68% c) 48% d) 26%
4. In an orthorhombic crystal:
   a) $a = b = c, \alpha = \beta = \gamma = 90°$
   b) $a \neq b \neq c, \alpha = \beta = \gamma = 90°$
   c) $a = b \neq c, \alpha = \beta = \gamma = 90°$
   d) $a \neq b \neq c,. \alpha \neq \beta \neq \gamma \neq 90$
5. A metal crystallizes with a face-centred cubic lattice. The edge of the unit cell is 408 pm. The diameter of the metal atom is....
   a) 144 pm b) 204 pm c) 288 pm d) 408 pm.
6. Which one of the following defects in the crystals lowers its density?
   a) F-centres
   b) Frenkel defect
   c) Schottky defect
   d) Interstitial defect
7. The ability of a given substance to assume two or more crystalline structure is called
   a) Polymorphism b) isomorphism c) amorphous d) isomerism
8. Which one of the following compound exhibits both Schottky and Frenkel defects?
   a) NaCl b) AgCl c) AgBr d) AgI
9. p-type and n-type extrinsic semiconductors are formed by adding impurities of valency....
   a) 5 and 3 respectively.
   b) 3 and 5 respectively.
   c) 5 and 4 respectively.
   d) 3 and 4 respectively.
10. The appearance of colour in solid alkali metal halides is generally due to:
    a) Schottky defect b) Frenkel defect c) Interstitial d) F-centres

	FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			Tanta UNIVERSITY
	EXAMINATION for Seniors (Fourth Year) students OF Biochemistry			
	COURSE TITLE:	Immunology		COURSE CODE: BC 4107
DATE:	JANUARY, 2017	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- Cytotoxicity of ABO transfusion
c- Thymus depend on the age
d- Ig G of toxoplasmosis by indirect ELISA test and RIA.
e- Pattern of identity and non identity Ag

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

a. Immunoglobulin that predominant in lymph fluid and smallest Ig
b. The lymph node structure
c. Kinetic of immune response
d. Ag processing by APC

3- **Differentiate between:** **(25 marks)**

a. Direct and Indirect of coomb's test
b. Genetic variation of L and H chain of IG
c. Classical and non classical complement pathway
d. Endogenous and Exogenous protein Ag in definition, Ag presenting cell and MHC class type
e. MBP and ECP

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

a. Innate immunity in respiratory tract
a. How inflammation caused after activation of neutrophil
b. Importance of lymph
c. Direct complement fixation test of rubella IgG in seum
d. Arthus sickness

أطيب التمنيات بالنجاح و التوفيق

Prof Tarek M Mohamed

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR SENIOR (FOURTH YEAR) STUDENTS OF CHEMISTRY/BIOCHEMISTRY, GEOLOGY, MICROBIOLOGY, AND ENTOMOLOGY			
	COURSE TITLE:	ANALYTICAL BIOCHEMISTRY		COURSE CODE: CH 4149
DATE:	17.01.2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions

I. A. Write the scientific term corresponding to each of the following: **(5 marks)**

1. A process in which a cell is gently lysed and its components and organelles are isolated in a pure and biologically active form.
2. The process of separating molecules in solution by the difference in their rates of diffusion through a semipermeable membrane.
3. A purification method that relies on the basis of protein solubility.
4. A chromatographic technique that provides high selectivity and large sample-handling capacity.
5. A form of affinity chromatography in which an antibody is used to purify its antigen.
6. The technique that the protein sample is first subjected to isoelectric focusing in one dimension and then to SDS-PAGE in the second dimension.
7. A dye is mixed with the protein sample to aid its loading on to the gel of electrophoresis.
8. A reducing agent is mixed with the protein to break all the disulfide bonds in (SDS)-PAGE
9. Antibodies conjugated with enzyme and bind with immunoglobulin
10. The analysis that identify and determine only the number of each type of amino acid in a protein sample

B. Explain how: **(15 marks)**

1. Gel filtration chromatography (GFC) could be used to estimate the molecular weight of an unknown protein.
2. Insulin receptor is purified from a DEAE-cellulose fraction of liver homogenate by affinity chromatography (AC) technique.
3. Western blot technique could be used to estimate the molecular weight of sensitive specific unknown protein.
4. Determination of antibodies of HCV by ELISA technique
5. The molecular mass of mixture of proteomics can be determined by mass spectrometry.

II. A. Complete each of the following sentences: **(5 marks)**

1. _____ is a process by which a biological sample is brought to a state where all fractions of the sample are equal in composition.
2. _____ refers to the increase in specific activity.
3. Results from gel filtration are usually expressed as a (n) _____
4. _____ are positively charged resins and have negatively charged counter ions (anions) available for exchange.
5. Recombinant proteins tagged with histidine are purified using _____.
6. _____ can be detected as little as 10 nmol of an amino acid.
7. _____ can be visualized a protein in a gel electrophoresis as little as 0.1-1.0 μg protein
8. In _____ electrophoretically separates proteins, a polyacrylamide gel is used and contains a mixture of _____ (small multicharged polymers that have many pI values).
9. When the pH of medium is higher than pI of the protein, the protein carry _____ charges

B. 1. You have a mixture of proteins with the following properties: **(10 marks)**

#	Protein	pI	MW (kDa)
A	Ubiquitin	10	12
B	Cytochrome c	4	62
C	Myoglobin	8	28
D	Ovalbumin	5	9

Predict the emergence of these proteins when a mixture of the four is chromatographed in an cation exchanger (CM-cellulose) at pH 7.0, with a linear salt gradient elution. Comment on your answer.

2. Clarify the Edman degradation by chemical equation and summarized the steps to identify the amino acid sequencing of a protein

III. Choose the correct answer: **(5 marks)**

1. **Protein separation techniques are often based on the following properties except**
   - **a.** Solubility of the protein
   - **b.** Viscosity of the protein
   - **c.** Charge of protein
   - **d.** Specific binding affinity of the protein
2. **You find that your protein sample loses activity during storage. What can you do about this?**
   - **a.** Add an additional purification step.
   - **b.** Use a protease inhibitor during purification steps.
   - **c.** Perform each step as quickly as possible, in a cold-room.
   - **d.** All of the above.
3. **What is the starting point for selection of a suitable IEC matrix for purification of a recombinant protein?**

د/ ابكري / د/ ال... / علوم المواد ، د/ جيولوجيا / د/ ايمان ، د/ علم المياه
د/ علم الحشرات

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	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF CHEMISTRY		
	EXAMINATION FOR DUAL SPECIALIZATION STUDENTS		
	Course Title	**SOLID STATE CHEMISTRY**	Code: **CH 4143**
10/1/2017	1st term	Total Assessment Marks: 50	Time: 2 *hrs*

Answer the following questions:

(A) Select the proper choice from the given multiple choices: (10 *marks*)

1. What is the number of atoms in the unit cell of body centred cube?
   a) 1 b) 2 c) 4 d) 6
2. Which of the following compounds shows metal deficiency defect?
   a) $Fe_{0.95}O$ b) $Fe_2O_{3.6}$ c) Fe_3O_4 d) $FeS_{1.6}$
3. Percentage of free space in a face centred cubic unit cell is:
   a) 74% b) 68% c) 48% d) 26%
4. In an orthorhombic crystal:
   a) $a = b = c, \alpha = \beta = \gamma = 90°$
   b) $a \neq b \neq c, \alpha = \beta = \gamma = 90°$
   c) $a = b \neq c, \alpha = \beta = \gamma = 90°$
   d) $a \neq b \neq c,. \alpha \neq \beta \neq \gamma \neq 90$
5. A metal crystallizes with a face-centred cubic lattice. The edge of the unit cell is 408 pm. The diameter of the metal atom is....
   a) 144 pm b) 204 pm c) 288 pm d) 408 pm.
6. Which one of the following defects in the crystals lowers its density?
   a) F-centres
   b) Frenkel defect
   c) Schottky defect
   d) Interstitial defect
7. The ability of a given substance to assume two or more crystalline structure is called
   a) Polymorphism b) isomorphism c) amorphous d) isomerism
8. Which one of the following compound exhibits both Schottky and Frenkel defects?
   a) NaCl b) AgCl c) AgBr d) AgI
9. p-type and n-type extrinsic semiconductors are formed by adding impurities of valency....
   a) 5 and 3 respectively.
   b) 3 and 5 respectively.
   c) 5 and 4 respectively.
   d) 3 and 4 respectively.
10. The appearance of colour in solid alkali metal halides is generally due to:
    a) Schottky defect b) Frenkel defect c) Interstitial d) F-centres

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: 15/1/2017**	

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- Aniline Point.

ii- Oxygen compounds in petroleum.

iii-Olefins in crude oil.

iv- Lubricating oil and waxes. v- Gazoline Zone.

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

i- Catalytic Cracking. ii-Alkylation. 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-Ammonium nitrate fertilizer. 2-Nylon 6, 6. 3-Teflon.

4- Phenolic Resins. 5-Hydrazine hydrate.

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

Prof. El-Refaie Kenawy **Prof. Abd El-baset shoker**

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF CHEMISTRY AND ENTOMOLOGY			
	COURSE TITLE:	Insect physiology		COURSE CODE: EN 4141
DATE18/1	JANUARY, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions:

Notice! The examination consists of two pages

FIRST GROUP OF QUESTIONS (TOTAL 25 MARKS)

1. **Choose from between the brackets the correct answer (Total 7 Marks, 1 Mark each):**

a. Haemoglobin is (adult---pupal---- larval) specific protein.
b. (Glutamine---Proline---Glycin) is one of the major amino acids in silken cocoon produced by the silk worm.
c. In grasshopper, ventilation is produced by (air flow in and out of each of the spiracles -----air taken into the body through the first four spiracles and expelled through the remaining 6 pairs of abdominal spiracles).
d. In insect leg, the blood passes down the (anterior -----posterior) channel from the perineural sinus and up the (anterior ----posterior) channel to the spaces between the wing muscles in the perivisceral sinus.
e. A typical recording shows the ascending line associates with (diastole----- systole), the descending (diastole----- systole), and the resting period as diastasis.
f. The relative abundance of different haemocyte types is (constant-----not constant).
g. The major blood sugar in insects is (glucose---------- α–trehalose).

2. **Fill in the blanks with the appropriate words (Total 4 Marks, 0.5 Mark each)**

a. Diastole, the dilatation phase, results from .....
b. The basic function of plasma is .....
c. The major components of organic acids are acids associated with ..... including .....
d. In insects, lipids are transported in the plasma bound to ..... called ....., which are produced by .....
e. The spiracles are normally open for the shortest time necessary for efficient respiration in order to .....
f. Increase in numbers of circulating haemocytes may result from ..... while reduction in haemocyte number may result from .....or from.... .
g. The amount of tracheal liquor in the tracheole is affected by the osmotic pressure of the surrounding tissue fluid.
h. In the notonectid *Anisops*, the haemoglobin contained in the modified fat body cells, serves as ..... which enables the insect to.....

3. **Indicate whether the following statements are true (T) or false (F) (Total 8 Marks, 1 Mark each):**

a. Plasmatocytes are the principal haemocytes involved in phagocytosis. Cockroach vitellogenin injected into silk moths is not taken up by the ovaries. False
b. Spiracle closure results from relaxation of the closer muscle, while opening results when the closer muscle is contracted.
c. Attacin family is important group of antibacterial proteins isolated from lepidopteran and dipteran species.
d. Chloride is present in low concentrations in Apterygota and hemimetabolous insects, but is characteristically high in holometabolous insects.
e. Vitellogenins are synthesized in the fat body.

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF CHEMISTRY AND ENTOMOLOGY			
	COURSE TITLE:	Insect physiology		COURSE CODE: EN 4141
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ك/ جيولوجيا ، جيوفيزياء جيولوجيا

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR FOURTH LEVEL STUDENTS			
	COURSE TITLE:	PETROLEUM GEOLOGY -1		CODE NO. GE 4109
DATE:	JANUARY , 2017	FIRST TERM	TOTAL ASSESSMENT MARKS: 100	TIME : 2 HOURS

1- Give reasons on the followings : **(30 marks)**

a) Bacteria play a role in transformation of organic matters into petroleum.

b) The total organic carbon is used in source rock evaluation.

c) Not two petroleum compositions are alike.

2- Discuss the following subjects: **(30 marks)**

a) Primary porosity.

b) Permeability phase system.

c) Cap rock types.

3- Compare between the followings : **(10 marks)**

a) Biogenic and thermogenic hydrocarbons.

b) Pour and boiling points of oils.

4- Complete the following : **(10 marks)**

a) Viscosity of oil is defined as .....

b) Solution porosity types are ..... , ... & .....

c) Commercial oil can be classified into ..... , ... & .....

d) ..... & ..... have optical activity though they are inorganic substances.

5- Give an account on the chemical reservoir rocks. **(20 marks)**

EXAMINERS	PROF.DR. NADER ELGENDY	DR. SHADIA ABDELRAHEEM

TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY

FINAL EXAM (FIRST TERM, JAN. 2017) FOR THE FOURTH YEAR (BOTANY CHEMISTRY)

COURSE TITLE	PLANT MOLECULAR SYSTEMATICS	COURSE CODE: BO4105
JAN. 2017	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HRS

Please answer all the following questions:

1) Complete the following: (20 marks)

a) DNA code is read and converted to protein in two steps called ..... and .....

b) All of the genes within a cell are called .....

c) .....are different forms of a protein with same catalytic activity but with different molecular weight.

d) A gene is a code composed of a string of .....

e) .....is a mathematical structure used to model the actual evolutionary history of a group of sequences or organisms.

2) Compare between the following: (30 marks)

a) RAPD and SSR markers

b) Nuclear and plastid genomes

c) Peripatric and parapatric Speciation

3) Define the following scientific terms: (20 marks)

a) Species

b) Cladogenesis

c) Taq polymerase enzyme

d) Proteins

4) Write briefly on the following: (30 marks)

a) Sanger sequencing

b) Polymerase chain reaction

c) Allopatric speciation

d) DNA structure

e) Amplified fragment length polymorphism (AFLP)

f) Speciation by gene transposition

Best wishes,

Examiner:

Dr. Mohamed El-Esawi

د/ اسكندر زيدان

	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4th YEAR BOTANY & CHEM-MICRO)			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: BO 4105, BO 4123
Date	Jan 2016	Term: First	Total Assessment: 100 Marks (BO 4105) Total Assessment: 50 Marks (BO 4123)	Time Allowed: 2 Hrours

السؤال الأول (٢٠/١٠ درجة):

١- قارن بين الفطرة الأولى والفطرة الثانية؟
٢- قارن بين تنوع النقطة وتنوع ألفا؟
٣- ماهو اكبر مسبب لانقراض الأنواع؟
٤- ماهى مبررات صون التنوع الحيوى؟
٥- أيها أفضل: المحميات المفردة كبيرة الجحم أم المحميات العديدة صغيرة الحجم، ولماذا؟

السؤال الثانى (٢٠/١٠درجة):

١- وضح كيف أن بعض الأنواع تشارك اكثر من غيرها فى التنوع الحيوى لمنطقة ما ؟
٢- ما الفرق بين إسترجاع وإعادة تأهيل المجتمعات النباتية؟
٣- تقسم الخصائص العلمية لاختيار المحميات الطبيعية إلى ثلاثة أقسام، ما هى؟ (إعط مثال لكل قسم)؟
٤- وضح باختصار المقصود بمقياس التصنع كأحد مقاييس الحالة الفطرية للبيئات الطبيعية؟
٥- ماهو المقصود بمراكز التنوع النباتى، وكيف يتم اختيارها طبقا للإتحاد الدولى لصون الطبيعة (IUCN)؟

السؤال الثالث - ما المقصود بالمصطلحات التالية (٢٠/ ١٠درجة):

١- العائد النوعى (تنوع بيتا).
٢- محمية المحيط الحيوى.
٣- القيمة التعليمية للمحميات الطبيعية.
٤- خاصية القابلية للإحلال أو الإيجاد.
٥-- خاصية التفرد.

السؤال الرابع - عرف كل من (٢٠/١٠درجة):

١- ظاهرة الدفينة.
٢- الهشاشة البينية.
٣- التنوع الحيوى.
٤- محمية المعزل الطبيعى و محمية الموارد الطبيعية.
٥- الندرة الطبيعية والندرة المكتسبة.

د/ اسكندر بليح

	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4th YEAR BOTANY & CHEM-MICRO)			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: BO 4105, BO 4123
Date	Jan 2016	Term: First	Total Assessment: 100 Marks (BO 4105) Total Assessment: 50 Marks (BO 4123)	Time Allowed: 2 Hrours

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٤- خاصية القابلية للإحلال أو الإيجاد.
٥- خاصية التفرد.

السؤال الرابع - عرف كل من (٢٠/١٠درجة):

١- ظاهرة الدفينة.
٢- الهشاشة البينية.
٣- التنوع الحيوى.
٤- محمية المعزل الطبيعى و محمية الموارد الطبيعية.
٥- الندرة الطبيعية والندرة المكتسبة.

جامعة طنطا
كلية العلوم
قسم الرياضيات

امتحان الطلاب المستجدون – المستوى الرابع – شعبة كيمياء/حيوان + شعبة كيمياء/حشرات

اسم المقرر: إحصاء حيوى	كود المقرر: ST4107
زمن الامتحان:ساعتان	الدرجة الكلية للامتحان: ٥٠ / الفصل الدراسي: الاول / التاريخ: ٢١-١-٢٠١٧

أجب عن الأسئلة التالية:

السؤال الاول

(أ) عرف ما يلي : المجتمع - العينة - المعلمة - الاحصاءة – فترة الثقة – الفرض الاحصائى . (ست درجات)

(ب) اشرح كيفية اختيار عينة عشوائية منتظمة حجمها 40 مفردة من مجتمع مكون من 1000 مفردة. (ست درجات)

(ج) أخذت عينة عشوائية مكونة من 36 تفاحة من مزرعة تفاح، فوجد أن متوسط وزن التفاحة هو 190 جرام. اختبر الفرض القائل أن متوسط وزن التفاحة بالمزرعة يقل عن 200 جرام علما بأن الانحراف المعياري لأوزان التفاح بالمزرعة هو 18 جرام ، وذلك عند مستوى معنوية $\alpha = 0.01$. (ست درجات)

٢- (أ) أوجد فترة ثقة بدرجة ثقة 0.95 للمتوسط μ والذي يمثل متوسط عدد الميكروجرامات من جزيئات أول أكسيد الكربون التي تلوث الهواء في كل متر مكعب من الهواء وذلك بناءا على عينة حجمها خمسة وقيمها المشاهدة هي 58, 70, 54, 60, 58 إذا كان توزيع المجتمع المسحوب منه العينة طبيعي وتباينه هو $\sigma^2 = 9$. (ست درجات)

(ب) أخذت عينتين مستقلتين حجمهما $n_1 = n_2 = 8$ من مجتمعين لهما توزيعين طبيعيين متساويين فى التباين وكان: $\bar{X}_1 = 23, \bar{X}_2 = 19, S_1^2 = 3, S_2^2 = 5$. أوجد فترة الثقة للفرق بين متوسطى المجتمعين وذلك عند درجة ثقة 0.95 . (ثمانى درجات)

٣- (أ) فى دراسة لاستطلاع رأى السكان فى إنشاء مصنع للاسمنت بين مدينتين A وB ، تم اختيار مجموعة من 80 شخص من A ، كان من بينهم 50 شخصا لا يوافقوا على إنشاء المصنع ومجموعة من المدينة B تتكون من 120 شخصا كان منهم 60 شخصا لم يوافقوا على المشروع. هل تعتقد أن نسبة السكان المعارضين للمشروع فى المدينة A ، أكبر من نسبة السكان المعارضين للمشروع فى المدينة B؟ (عند مستوى معنوية 0.05). (ثمانى درجات)

(ب) لدينا مجموعة مكونة من سبعة أشخاص فإذا كانت أوزانهم بالكيلوجرام قبل الحمية (X) ، وبعد الحمية لمدة شهر (Y) كالتالى:

X	62	82	77	57	62	90	82
Y	53	73	65	55	67	85	79

فهل نظام الحمية قد أفاد فى إنقاص الوزن عند مستوى معنوية 0.05 ؟ (عشر درجات)

$Z_{0.005} = 2.58, Z_{0.01} = 2.33, Z_{0.025} = 1.96, Z_{0.05} = 1.645, t_{6,0.05} = 2.3$

$t_{6,0.025} = 2.447, t_{14,0.025} = 2.145$

الاحصاء

جامعة طنطا كلية العلوم قسم الرياضيات	
امتحان الطلاب المستجدون – الفرقة الرابعة – شعبة الإحصاء	
اسم المقرر: نظرية التقدير	كود المقرر: ST4107
زمن الامتحان: ساعتان | الدرجة الكلية للامتحان: ١٠٠ | الفصل الدراسي: الأول | التاريخ: يناير ٢٠١٧	

أجب عن الأسئلة الآتية

السؤال الأول:

(١) اثبت أنه إذا كان هناك مقدرا غير متحيز بأقل تباين MVUE فإنه يكون وحيدا Unique.

(٢) استنتج فترة الثقة للفرق بين متوسطى مجتمعين.

السؤال الثاني:

إذا كانت $\underline{X} = (X_1, X_2, \dots, X_n)$ عينة عشوائية مختارة من مجتمع دالة كثافته على الصورة

$$f(x|\vartheta) = \vartheta e^{-\vartheta x},\ x \geq 0$$

و بفرض أن ϑ هو متغير عشوائى دالة كثافته هى $p(\vartheta) = \mu e^{-\mu\vartheta}, \vartheta \geq 0$ حيث ان μ معلومة. أوجد مقدر بايز للمعلمة ϑ.

السؤال الثالث:

(١) إذا كانت $X_1, X_2, \dots, X_n$ عينة عشوائية مختارة من مجتمع يتبع توزيع $N(0, \theta)$ فأوجد الحد الأدنى لتباين المقدر الغير متحيز للمعلمة θ. هل يوجد مقدر غير متحيز بأقل تباين للمعلمة θ؟

(٢) إذا كان لدينا عينة عشوائية من مجتمع يتبع توزيع منتظم على الفترة $(0, \theta)$ فاثبت أن $U = \max(X_i)$ هو تقدير متسق للمعلمة θ.

السؤال الرابع:

(١) إذا كانت $X_1, X_2, \dots, X_n$ عينة عشوائية مختارة من مجتمع يتبع توزيع طبيعى بمتوسط μ و تباين σ_1^2 وأيضا $Y_1, Y_2, \dots, Y_n$ عينة عشوائية أخرى مختارة من مجتمع يتبع توزيع طبيعى بمتوسط μ و تباين σ_2^2.

(أ) اثبت أن: $T = w\bar{X} + (1-w)\bar{Y}$ هو مقدر غير متحيز للمعلمة μ حيث أن $0 < w < 1$.

(ب) $V(T) < V(\bar{X})$ اذا كان $w = \sigma_2^2/(\sigma_2^2 + \sigma_1^2)$.

(٢) بفرض أن لدينا عينة عشوائية حجمها n مختارة من مجتمع يتبع توزيع برنوللى بمعلمة p، فاثبت أن الاحصاء $Y = \sum_{i=1}^{n} X_i$ هو احصاء كافى و كامل للمعلمة p.

الممتحنون:	د/ هالـــة علـى فرجانـــى	د/ نعمـة صـلاح يوســف

مع تمنياتي للجميع بالنجاح و التوفيق