لـــو بنايـــه

	Tanta UNIVERSITY Faculty of Science Department of Botany			
	EXAMINATION for level 2 Students of Chemistry /Botany			
	Course title:	Medicinal and Aromatic plants		Course Code:BO2206
Date:15	May 2015	Term: second	Total assessment Marks: 100	Time ALLOWED:2 ours

1-: اختر من (أ) ما يناسب من (ب) مع كتابة الاسم الدارج والمادة الفعالة لكل مما يأتي: (30 درجة)

(أ) 1- Thymus vulgaris 2- Ocimum asilicum 3- Apium grawedens
4- Anethum gravoles 5- Majoran hortensis 6- Ammi visnaga
7- Brassica nigra 8- Glycerrhize globra 9- Punica granatum
10- Cannabis sativa.

(ب) 1- مدر للبن المرضعات 2- طارد للديدان الرفيعة 3- عسر الطمث 4- تسكين احتقان البروستاتا 5- علاج البحة وفقدان الصوت 6- مهضم وحالات قرحة المعدة 7- طارد للديدان الشريطية 8- علاج ألام الصداع النصفي 9- علاج القولون العصبي 10- علاج الحصبة 11- حالات تشنج الحجاب الحاجز 12- يقلل لبن الأم

2- اعقد في جدول : الاسم الدارج والعلمي والجزء المستخرج منة المادة الفعالة وثلاث أهمية طبية لكل من المادة الفعالة الآتية:- (20 درجة)

كولوسنسين – ثيوفلين – السترامونيوم – ياسين

3- أكمل: (30 درجة)

1- تصنيف النباتات الطبية حسب ما تحتويه من مادة كيميائية فعالة إلي 1،2،3،4،5،6،7،8
2- ترجع أهمية عملية التجفيف للنباتات الطبية إلي 1،2،3،4،5
3- قواعد جمع الأعشاب الطبية هي 1،2،3،4،5
4- من المشاكل التي تواجهه زراعة النباتات الطبية هي 1،2،3،4،5،6
5- توجد مادة الاتروبين في نبات 1،2،3، التي تستخدم في 1،2،3
6- من فوائد الجليكوسيدات للنبات هي 1،2،3،4،5

---

4 – تكلم في الأتي: (20 درجة)

أ- صنف النباتات الطبية والعطرية حسب تواجد المادة الفعالة في النبات. مع ذكر مثالين لكل منها. (10 درجات)

ب- ما فائدة الزيوت الطيارة لكل من النبات والإنسان. اذكر طريقة استخلاص الزيوت الطيارة باستخدام المذيبات المختلفة مع ذكر أهم مميزات وعيوب هذه الطريقة. (10 درجات)

انتهت الأسئلة

مع تمنياتي لكم بالتوفيق والنجاح

أستاذ المادة: أ.د.محمد أحمد البحيري

كلية العلوم	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAM. FOR (2rd YEAR) STUDENTS OF CHEM. MICROBIOLOGY			
	COURSE TITLE:	APPLIED BACTERIOLOGY		COURSE COUDE:MB 2224
DATE:	JUNE,2015	TERM: SECOND	50 MARKS	TIME ALLOWED:2 H

Answer the following questions:

1. Complete the following: *(15 marks)*

a. The factor affecting nodulation is 1…… 2……. 3……..

b. In cholera disease, the bacteria adhere to ……. and produce …… toxin which mode of action is …….

c. In the oceans, …… and …….. and low Concentration of …….. and …….. are limiting to hydrocarbon biodegradation

d. Botulinum is……. produced by bacteria called ……..

g. The types of endotoxins are 1…… 2……. 3……..

2. Put true or false and correct the false: *(15 Marks)*

a. Endotoxin is phosphopolysaccaride.

b. Attenuated live vaccine have highly successful against human pathogen e.g. Mycobacterium tuberculosis.

c. Mortality of Anthrax can reach 90 -100%.

d. Coliform bacteria when present in drinking water indicate the water safe for using.

e. The linear ABS makes block to active site of enzyme of microorganisms.

انظر خلف الورقه

3. Compare between: *(20 Marks)*

a. Advantages and disadvantages of biological weapons.

b. Wind raw and the continuous feed composting process.

c. The two kinds of membrane disrupting toxins.

d. Exotoxin produced in food and bacteria in wound or mucosal surface.

Good luck

Examiner:

Dr. Samia Shabana

كلية العلوم	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAM. FOR (2rd YEAR) STUDENTS OF CHEM. MICROBIOLOGY			
	COURSE TITLE:	APPLIED BACTERIOLOGY		COURSE COUDE:MB 2224
DATE:	JUNE,2015	TERM: SECOND	50 MARKS	TIME ALLOWED:2 H

Answer the following questions:

1. Complete the following: *(15 marks)*

a. The factor affecting nodulation is 1…… 2……. 3……..

b. In cholera disease, the bacteria adhere to ……. and produce …… toxin which mode of action is …….

c. In the oceans, …… and …….. and low Concentration of …….. and …….. are limiting to hydrocarbon biodegradation

d. Botulinum is……. produced by bacteria called ……...

g. The types of endotoxins are 1…… 2……. 3……..

2. Put true or false and correct the false: *(15 Marks)*

a. Endotoxin is phosphopolysaccaride.

b. Attenuated live vaccine have highly successful against human pathogen e.g. Mycobacterium tuberculosis.

c. Mortality of Anthrax can reach 90 -100%.

d. Coliform bacteria when present in drinking water indicate the water safe for using.

e. The linear ABS makes block to active site of enzyme of microorganisms.

انظر خلف الورقه

3. Compare between: *(20 Marks)*

a. Advantages and disadvantages of biological weapons.

b. Wind raw and the continuous feed composting process.

c. The two kinds of membrane disrupting toxins.

d. Exotoxin produced in food and bacteria in wound or mucosal surface.

Good luck

Examiner:

Dr. Samia Shabana

كلية العلوم	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAM. FOR (2rd YEAR) STUDENTS OF CHEM. MICROBIOLOGY			
	COURSE TITLE:	APPLIED BACTERIOLOGY		COURSE COUDE:MB 2224
DATE:	JUNE,2015	TERM: SECOND	50 MARKS	TIME ALLOWED:2 H

Answer the following questions:

1. Complete the following: *(15 marks)*

a. The factor affecting nodulation is 1…… 2……. 3……..

b. In cholera disease, the bacteria adhere to ……. and produce …… toxin which mode of action is …….

c. In the oceans, …… and …….. and low Concentration of …….. and …….. are limiting to hydrocarbon biodegradation

d. Botulinum is…… produced by bacteria called ……..

g. The types of endotoxins are 1…… 2……. 3……..

2. Put true or false and correct the false: *(15 Marks)*

a. Endotoxin is phosphopolysaccaride.

b. Attenuated live vaccine have highly successful against human pathogen e.g. Mycobacterium tuberculosis.

c. Mortality of Anthrax can reach 90 -100%.

d. Coliform bacteria when present in drinking water indicate the water safe for using.

e. The linear ABS makes block to active site of enzyme of microorganisms.

انظر خلف الورقه

3. Compare between: *(20 Marks)*

a. Advantages and disadvantages of biological weapons.

b. Wind raw and the continuous feed composting process.

c. The two kinds of membrane disrupting toxins.

d. Exotoxin produced in food and bacteria in wound or mucosal surface.

Good luck

Examiner:

Dr. Samia Shabana

Tanta University
Faculty of Science
Department of Chemistry

Final Examination for Second and Third Level Students of Chemistry/ Geology, Zoology, Microbiology, Botany, Entomology. Biochemistry)

Chemical Kinetics Chemistry **Course code: CH 2240**

June 13th, 2015 **Term: Second** **Total Assessment Marks: 100** **Time Allowed: 2h**

Answer all the following questions : (20 marks for each)

1- a) Discuss the factors affecting the reaction rate?

b) An elementary reaction $2A + C \rightarrow D$, is second order in A and first order in C and the rate of this reaction is 2.5×10^{-1} M/S .when the concentration of A. C and D are all 1.0 M. What is the rate constant of this reaction?

2- a) Define the rate equation of chemical reaction and discuss how can you determine it ?

b) The following data were obtained in the decomposition of N_2O_5 **in** CCL_4 **at 40** c°

t (sec)	600	1200	1800	2400	3000	ω
O_2(ml)	6.30	11.40	15.53	18.90	21.70	34.75

Find out the order of this reaction and its half life time?

3- a) Enumerate the methods for determination the order of chemical reaction and discuss the differential method?

b) The half-life for radioactive disintegration of radium is 1590 Yr . calculate the decay constant .In how many years will three-quarter of the radium have undergone decay? (The decay is first order)

(انظر خلفه)

4- a) Deduce the integrated rate equation of the opposing first-order reaction

$$A \underset{K_{-1}}{\overset{K_1}{\rightleftarrows}} B$$

b) The half-life of thermal denaturation of hemoglobin first order process has been to be 3460 Sec at 60 **c°** and at 65 **c°**. Calculate the activation energy (ΔE).

5- a) Write short notes about characteristics and classifications of catalysts and discuss the mechanism of chemical catalysis according to Arrhenius concept (Equilibrium treatment).

b) The reaction mechanism, $A + B \underset{K_{-1}}{\overset{K_1}{\rightleftarrows}} C \xrightarrow{K_2} P$ if $k_{-1} >> k_2$. Find out the rate law and the order of this reaction.

GOOD LUCK

Prof. Dr M. Y. EL SHEKH **Prof. Dr Hosny EL-Daly**

	Tanta UNIVERSITY Faculty of Science Department of Botany			
	EXAMINATION for Sophomores (chemistry/botany)			
	Course title:	Plant virology		Course Code: MB 2240
DATE:25-5-2015	june 2015	Term: second	Total assessment Marks: 50	Time ALLOWED: 2 hours

Answer the following questions:

1-Complete the following: (10 marks)

a-Virus Particle morphology are ..., ...,....., ...
b-Viral infection causes leaf symptoms such as:..... , ... ,.....,
....., ...

c- Symptoms around the site of virus known as..... and when virus spreads from site to another known as.....

2- Discus genome properties of plant viruses (5 marks)

3-Compare between the following: (10 marks)

a- Multipartite and segmented virus genomes
b- Performed and Inducible plant defenses

4-Identify the following: (10 marks)

c-Types of virus-vector relationships
d-Hypersensitivity

5-mention the causes of symptoms variations (5 marks)

6-Detect how plant viruses spread systemically infection (5 marks)

7- Discus control of plant viruses (5 marks)

Best wishes Dr Nanis G. Allam

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION (JAN 2015) BOTANY SPECIAL AND CHEMISTYR/BOTANY STUDENTS			
	COURSE TITLE	PLANT TAXONOMY		COURSE CODE: BO2202
DATE	– JUN – 2015		TOTAL ASSESSMENT MARKS 150	TIME ALLOWED 2 HOURS

Answer the following questions:-

I - Mark the correct answers with the sign (√) and the wrong answers with the sign (X). (30 Marks)

1- Racemose inflorescence in which peduncle is monopodial. ( )
2- Corymb inflorescence is known as one type of racemose inflorescence. ( )
3- Latex is usually present in monocot plants. ( )
4- Flowers of monocot plants are usually trimerous. ( )
5- In sympetalae, stamens are usually epipetalous. ( )
6-Clone pollination is defined as one type of cross pollination. ( )
7- Complete flower consists of two whorls. ( )
8- A carpel is composed of three parts. ( )

II – Write with drawing of the following :- (45 Marks)

1- Double fertilization.
2- Differences between order cyperales and graminales.
3- Differences between families of geraniales.

III- Briefly write in the following :- (75 Marks)

1- Heterogenicity between families of order tubiflorae.
2-Different types of determinate inflorescence.
3- Chemical and cytological characters support classification of monocot and dicot plants.

Examiner: Prof. Dr. Adel El-Shanshoury

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	THEORITICAL FINAL EXAMINATION FOR SOPHOMORES (2ND YEAR) STUDENTS OF CHEMISTRY /BOTANY PROGRAMME			
	COURSE TITLE: PHYCOLOGY			COURSE CODE:BO2204
DATE:	6 JUNE, 2015	TERM: 2	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

Qestion 1: Complete the following scientific sentences: (30 marks)

1 - Cell wall of Cyanobacteria consists of ..... and .....

2-According to aquatic habitat, the algae are classified into.....and.....

3- Heterocysts are classified according to position into ..... and .....

4- The dominant pigment in Cyanobacteria is .....while in Xanthophyta is.....

5- The function of eye spot in *Euglena* is.....while the contractile vacuoles are for.....

6 - The false branching present in ..... while true branching present in.....

7 - The life cycles in algae are differentiated into .....**or**.....

8- The cell wall of Chlorophyta is composed of.....while of Phaeophyta is composed of.....

9- Among the common vegetative forms of green algae are .....and.....

10- The zoospore is.....while aplanospore is.....

11- The polyhedral stage is formed in the life cycle of..... while palmella stage is in.....life cycle.

12- The branching of *Cladophora* is....., while in *Ulothrix* is.....

13- Sexual reproduction in *Spirogyra* is through.....,while in *Chlamydomonas* is through.....

14- In red algae the cells are connected through.....and reserve food as.....

15- The plant body of *Chara* consists of two types of branching.....and.....

Question 2: Put true √ or false X sign then correct the false phrases (30 marks):

1 - False branching is characteristic of *Stigonema* ( ).....

2 - Cyanobacteria reproduce by sexual reproduction ( ).....

3 - Planktons mean the algae which can live on the rocks ( ).....

4 - *Euglena* reproduces by isogametes ( ).....

5 – The life cycle of diatoms are haploid ( ).....

6 - Auxospores formation are exhibited by *Gloeocapsa* ( ).....

7 - All members of cyanobacteria can fix atmospheric nitrogen ( ).....

8- Seaweeds are common in all marine habitats ( ).....

9- Alginate is a cell wall component of brown algae ( ).....

10- *Chlorella* reproduce asexually by meiospores ( ).....

11- Rhodophyta exhibited a wide variation in colors ( ).....

12- *Ectocarpus* life cycle is diploid ( ).....

Cladophora is by zoospores ( ).....

walls ( ).....

.....

Question 3: Choose the correct answer from the followings (30 marks):

1 - Oil chrysolaminarin and volutin are food reserves of (desmids - diatoms - green algae- brown algae).

2 - Algae live in association with fungi in (plant- archegoniate- lichens - nothing).

3 - Euglenophyta are classified as (animals - plants- animals and plants - fungi).

4 - Myxophyceae members are characterized by (motile stages -sexual reproduction - incipient nucleus).

5 - Plastids are absent in the class (Chlorophyceae- Phaeophyceae- Bacillariophyceae- Myxophyceae).

6 - Food reserves of Euglenoids consists of (starch- glycogen- paramylon- oils).

7 - Algae means (seaweeds- lichens- archegoniate- lower plants).

8- *Hydrodictyon* cells arranged as (triangular - tetragonal- hexagonal- octagonal).

9- The growth of *Laminaria* thallus is (apical - intercalary- basal- laterally).

10- *Chara* vegetative reproduction is by (bulbils- amylum stars- 2ry protonema- all mentioned).

11- Generally, the life cycle in Rhodophyta is (haploid- diploid- complex- others).

12- Chantransia-stage is in the life cycle of (*Poryphyra- Chondorus- Batrachospermum- Ulva).*

13- The sexual reproduction in *Volvox* is (heterogamous - isogamous- oogamous- others).

14- The dominant pigment in Phaeophyta is (biliproteins- chlorophyle- fucoxanthins- carotenes).

15- The reserved food in Chlorophyta is (paramylon- oils- starch- mannitol).

Question 4: Write short notes about each of the followings , illustrate with drawings if present (30 marks):

1- Features of similarity and dissimilarity between *Nostoc* and *Oscillatoria.*

2- The advanced structure of red algae reproductive organs.

3- *Volvox* colony is considered an ideal coenobium.

4- Features of similarity and dissimilarity between Cyanophyta and Rhodophyta.

5- Clump- formation in *Ectocarpus* life cycle.

6 - The anatomical development in *Laminaria* thallus structure.

Question 5: Answer three only from the followings (30 marks):

1- With a full drawing representation, illustrate the life cycle of *Vaucheria.*

2- Define the alternation of generations phenomenon in algae. Illustrate with a complete labeled drawings only the life cycle of *Fucus*. Explain if that phenomenon is present in this life cycle.

3-Choose one only from the following Chlorophyta members: *Hydrodictyon, Spirogyra, Ulothrix, Cladophora* or *Chara,* then draw its life cycle with a complete labeled drawing.

4- *Polysiphonia* is a red alga characterized by a complex life cycle, draw a full labeled diagrammatic representation of its life cycle. What are the different phases of the cycle and its type.

With our best wishes .....#

Examiners:

Prof. Dr. Atef Mohamed Abo-Shady	**Dr. Gehan A. Ismail**

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR FRESHMEN (SECOND YEAR) STUDENTS OF CHEMISTRY/MICROBIOLOGY, CHEMISTRY/BOTANY			
	COURSE TITLE:	KINETIC THEORY OF GASES		COURSE CODE: CH2242
DATE:	10 JUNE, 2015	TERM: SECOND	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:- **(Total Marks 50)**

[I]. Choose the correct answer from each of the following:- **(20 Marks)**

1. **The vander Waals equation of state for a real gas is given by: $(P + n^2a/V^2)(V-nb) = nRT$. Identify the incorrect statement concerning this equation:**
   - **a)** The constant **b** is related to the physical dimensions of the molecules.
   - **b)** The constant **a** is related to the intermolecular attractions between the molecules.
   - **c)** Deviations of gases from their ideal behavior are predicted by this equation.
   - **d)** Deviations of gases should become significant for gases at low pressures and/or high temperatures.
2. **What does the Kinetic Theory of Gases describe?**
   - **a)** Small numbers of small particles in constant random motion.
   - **b)** Large numbers of small particles in constant random motion.
   - **c)** Large numbers of small particles in an accelerating random motion.
   - **d)** Large numbers of large particles in constant random motion.
3. **What forces are assumed to exist between particles in the ideal gas?**
   a) Attractive **b)** Repulsive **c)** Both attractive and repulsive **d)** No force
4. **In an elastic collision, there is.....**
   - **a)** a net gain of potential energy
   - **b)** a net gain of kinetic energy
   - **c)** a net loss of potenial energy
   - **d)** no net loss of kinetic energy
5. **Consider the following statements concerning ideal gases:**

I. Boyle's Law establishes the inverse proportionality between volume and pressure of a fixed amount of ideal gas at fixed temperature.

II. Charles' Law establishes the direct proportionality between temperature and pressure of a fixed amount of ideal gas at fixed volume.

III. Dalton's Law establishes the additivity of pressures of a mixture of ideal gases.

IV. Avogadro's hypothesis establishes the direct proportionality between volume and moles of ideal gas present, holding pressure and temperature fixed.

a) all are true except I **b)** all are true except II **c)** all are true except III **d)** all are true

6. **A sample of a gas having a volume of 1 L at 25°C and 1 atm pressure is subjected to an increase in pressure and an increase in temperature. The volume of the gas.....**
   a) decreases **b)** increases **c)** remains the same
   d) either increases or decreases, depending on the sizes of the pressure and temperature changes
7. **In the separation of gaseous helium from hydrogen (H_2) by an effusion process, the hydrogen will effuse from the container at about .....the rate of helium effusion.**
   a) the same rate **b)** twice **c)** half **d)** 1.9 times **e)** 1.4 times

Go to the next page

8. **Identify the <u>incorrect</u> statement below:**
   a) The average kinetic energy of gas molecules is directly proportional to the temperature of the sample.
   b) The average kinetic energy of molecules of different gases is equal at a given temperature.
   c) The average speed of gas molecules is directly proportional to the square root of the temperature.
   d) The average speed of molecules of different gases is equal at a given temperature.
9. **Which of the following gases is not in the top three most abundant substances by mass in dry air?**
   a) Ar **b)** He **c)** O_2 **d)** N_2
10. **Identify the <u>incorrect</u> statement below:**
   a) When the vapor pressure of a liquid equals the surrounding pressure, the liquid boils.
   b) The boiling point is the temperature at which the vapor pressure of the liquid equals the surrounding pressure.
   c) The normal boiling point is the temperature at which the vapor pressure of the liquid equals 1 atm.
   d) The vapor pressure of a liquid increases as the temperature of the liquid increases.
   e) Easily vaporized liquids are called volatile liquids, having low vapor pressures.

[II]. Explain each of the following:- **(12 Marks)**

a) How does the air pressure in a balloon change when the balloon is squeezed? Explain why this change occurs using gas laws?.
b) The basic assumptions that the kinetic theory makes about gases.
c) The relation between thermal conductivity coefficient, K and the heat capacity, C_V.

[III]. Write on each of the following: - **(12 Marks)**

a) Factors affecting mean free path.
b) Types of collisions between gas molecules.
c) The derivation of barometric formula.
d) Temperature dependence of viscosity in both liquids and gases.

[IV] Solve the following problems:- **(6 Marks)**

a) Find the temperature at which the rms of a molecule of hydrogen gas equals 343 m/s. (R = 8.314 J/mole.k).

b) A 2.79 L container of ammonia gas for which P = 0.776 atm and T = 18.7°C is connected to a 1.16 L container of HCl gas for which P= 0.932 atm and T= 18.7°C. What mass of solid ammonia chloride will be formed? What gas is left in the combined volume, and what is its pressure? (R = 0.08206 L atm/mol.K).

(<u>Note</u>:- $_1H^1$, $_2He^4$, $_7N^{14}$, $_{17}Cl^{35.45}$, $_8O^{16}$, $_{18}Ar^{39.94}$)

<u>Good Luck</u>

Examiner	*Dr. Marwa Nabeeh El-Nahass*

	Tanta University Faculty of Science Chemistry Department		
	Examination for freshmen students of 2nd Level (Chemistry / Microbiology, Botany and Geology Sections)		
	Course Title	Organic 3	Course Code: CH 2214
Date:	May, 201٥	Total Asssessment Marks: 150	Time Allowed: 2 hrs

Section (A) Aliphatic II: (75 Mark)

Answer the following questions:

Question No. 1: **(25 Marks)**

a- With chemical equations, give one method to prepare each of the following:
1,3-butadiene - cinnamic acid - methyl vinyl ketone

b- Mark (√) or (X) for the following, correct the wrong one and give the reason in only one sentence:

i- Bromination of 1,4-pentadiene gives 1,4-addition product. ( )

ii- Benzaldehyde undergoes aldol condensation. ( )

iii- Free radical addition of simple alkenes goes faster than those of conjugated dienes. ( )

Question No. 2: **(25 Marks)**

With chemical equations, illustrate the following reactions:

i- Acetophenone with ethyl bromoacetate in the presence of Zn.

ii- Benzaldehyde with methyl bromide and triphenylphosphine in the presence of phenyl lithium

iii- 2-Hexenoic acid with HBr.

Question No. 3: **(25 Marks)**

With chemical equations carry out with mechanism the following conversions:

i- Propanal to 2-methyl-1-pentanol.

ii- Ethyl acetate to ethyl acetoacetate.

iii- Diethyl malonate to 2-methylbutanoic acid.

With Best Wishes

Examiner: Prof. Dr. Nasser El-Brollosy

باقى الأسئله فى ظهر الورقه

Section (B) Reaction Mechanism: (75 Mark)

(I) Complete the following equations and please write the mechanism (30 Marks):

1) Benzaldehyde + 50 % NaOH →

2) 2-Butenol + Thionyl chloride →

3) 1,2-Chlorohydrine + ^{-}OH →

4) Acrylic acid + HBr →

(II) Explain each of the following (45 Marks):

1. Trapping of an intermediate is a method for determining the reaction mechanism. (Consider the addition of Grignard reagent PhMgBr to ketene as an example).
2. Determination the mechanism of hydrolysis of ester by suitable isotope.
3. Stereo chemical studies as a method for determine the reaction mechanism. (Consider the bromination of cyclopentene as an example).
4. Stereo specific addition of bromine to maleic and fumaric acids.
5. Reaction of isobutylene with HBr gives *tert*-butyl bromide, while in the presence of peroxide, it gives isobutyl bromide.

With Best Wishes

Examiner: Dr. Atif El-Gharably

كلية العلوم

Tanta University - Faculty of Science - Chemistry Department
Final Exam of "Instrumental-1" – Course Code: CH2244
For 2nd Level Students [Ch-Botany, Ch-Geology, Ch-Microbiology),
Date: 30/5/2015 – Total assessment marks: 100 – Time Allowed: 2h

Answer the following questions:

Question (1) **[20 marks]**

Discuss the following:

a) Mode of vibrations and techniques used in Infrared measurements and the types of bands appear in the spectra.

b) Photometry and Stochiometry applications of electronic absorption spectroscopy.

Question (2) **[4 marks for each]**

In brief, differentiate between the following:

a) interference filter and an absorption filter.

b) Phototube and Photomultiplier.

c) Vibrational relaxation and Intersystem crossing.

d) Molecular emission and atomic emission.

e) Gratings and filters monochromators.

Question (3) **[4 marks for each]**

Mark (√) or (X) and give reasons for each:

a) In a ultraviolet-visible spectrometer, the sample placed after the monochromator?

b) Excitation source in flame photometer is "Gas discharge lamp".

c) Internal conversion is radiative process from excited singlet to ground states.

d) Unknown concentration of saturated hydrocarbons can be determined by UV spectrometers.

e) Spectra of Nitrogen can be studied using Infrared spectrometer.

Question (4) **[20 marks]**

a) Illustrate with drawing "Jablonisky diagram" and define the different processes of deactivation the exited states.

b) Explain with examples, the different electronic excitation states in organic and inorganic molecules.

Question (5) **[20 marks]**

a) Explain the Idea and draw the schematic diagram of flame photometer and metallic spectra.

b) Derive Beer's – Lambert law and explain its deviations.

========== *Best Wishes and Good luck* ==========

Examiner: Prof. Dr. Ahmed Rehab

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR SOPHOMORES (SECOND LEVEL) STUDENTS OF CHEMISTRY / BIOLOGY SECTIONS			
1969	COURSE TITLE:	STEREOCHEMISTRY		COURSE CODE:CH 2246
DATE: 27	MAY , 2015	TERM: SECOND	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer The Following Questions :

1) **Compare between each of the following:** **(10 Marks)**

i- Stereoselective addition of cis- and trans-2,3-diphenyl-2-butene.
ii- Diastereomers and Enantiomers.
iii- Racemization via cation and anion formation

2) Describe the separation of 2-aminobutane using (R)-(-)- mandelic acid . **(7 Marks)**

3) **Mark (√) or (X) and correct the false sentences:** **(8 Marks)**

i- Mutarotation is the conversion of glucose to fructose . ( )
ii- Streching vibration of C=C of trans-stillbene is lower than that of cis-isomer. ( )
iii-Trans-isomer of 2- pentene has lower λ_{max} and very lower ε than that of cis–isomer with UV- spectra . ( )
iv- Fumaric acid readily forms with heating a cyclic anhydride while maleic acid does not give an anhydride under the same conditions. ( )
v- Any molecule with a plane of symmetry or a center of symmetry must be achiral.( )

4) Explain the synthesis of (±)-2-metyl-1-hexanol using malonic acid . **(7 Marks)**

5) The chemical shift of ethylenic proton δ_H was found experimentally to be 7.65 ppm for **α-** methyl cinnamic acid . What is the geometrical isomerism of the above acid ? (substituent constants for chemical shift are : $-Ph_{gem} = 1.35$, $-COOH_{cis} = 1.35$, $COOH_{trans} = 0.47$, $-CH_{3\ cis} = -0.26$, $-CH_{3\ trans} = -0.29$ ppm) . **(6 Marks)**

6)a- Draw and name the isomers of the following compounds (with comment):**(9 Marks)**
i- Aldotetrose . ii- 2,3-Dibromobutane . iii-Dimethylcyclohexane .
b- Draw the following compounds : **(3 Marks)**
i- (R)- 3-Hexanol . ii- (2S,3S)-2,3-Dichloropentane .

Examinars:

Prof.Dr. Adel Selim **Dr. Mohamed Azam**