	TANTA UNIVERSITY, FACULTY OF SCIENCE, BOTANY DEPARTMENT	
	Final Examination for fourth level Students (Chemistry/ Microbiology)	
Course title:	MICROBIAL BIOREMEDIATION	Course Code: MB4107
DATE:6, JAN. , 2018	TERM: FIRST / TOTAL ASSESSMENT MARKS: 50	Time Allowed: 2 hours

Answer the following questions:

Q1: Complete the following: **(10 MARKS)**
(Each space with 1 MARKS)

1- The aim of Kyoto protocol (1997) is .....

2- The rotating disc digester has two main advantages ..... and .....

3- The ideal percentage of carbon dioxide in the composition of the earth atmosphere is .....

4-Biohydrometallurgy includes two of bacterial activity ..... And .....

5- The process in which magnetic bacteria take up the magnetic material and then deposit the magnetite is called .....

6- The biodegradability of a compound depends on its ....., ... and .....

Q2: Write short notes on Only Five of the following: **(25 MARKS)**

1- Addition of microorganisms or (DNA). (5 MARKS)
2- Degradation of polymers such as polyurethane. (5 MARKS)
3-Growth associated degradation of carbohydrates. (5 MARKS)
4- Bacterial succession in the polluted environment. (5 MARKS)
5-Beneficial effects of probiotics. (5 MARKS)
6-Biodegradation of Xenobiotics. (5 MARKS)

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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: 23/12/	2017	TOTAL ASSESSMENT MARKS: 100	TERM: FIRST	Time allowed: 2 hours

Answer the following questions with drawing if possible:-

I- Discuss briefly the following: 30 Marks

1- Classification key of the Ascomycetes yeasts.

2- Cell wall components in yeasts.

II- Choose one answer: 10 marks

1- Presence of *Carotenoid pigments in* yeast sp ,so it identified as:
a. *Filobasidiella* b. *Saccharomyces* c. *Rhodotorula*

2- Fimbriae are found in :
a. Ascomycetes yeasts b- Imperfect yeasts c. Hetero basidiomycetes yeasts d. Ascomycetes and Hetero basidiomycetes yeasts

3- The Ascogenous Yeasts had derived from:
a. Conidia b. Blastoconidia c. Pseudo hyphae d. Hyphal progenitor

4- Genomic libraries consist of:
a. Large number of *E.coli* clones, each of which bearing a particular recombinant plasmid.
b. Large number of *Saccharomyces cerevisae* each of which bearing a particular recombinant plasmid.
c. Non of the above

5- Hansenula ascospores are :
a. globose shaped - b. globose to hat shaped -c. Saturne-shaped d. All of the above

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III- Discuss the Yeasts growing cultures types. 30 marks

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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: 30/12/2017	

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- Pour point.

ii- sulfur compounds in petroleum.

iii- Kerosene zone in petroleum.

iv- Naphthenes or Cycloparaffins.

v- Aniline point.

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

i- Catalytic Cracking. ii- Alkylation. iii- Classification of Crude Oils

iv-Petrochemical from H_2S.

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

1- Carbon black. 2- Adipic acid. 3-Teflon.

4- Ethylene glycol. 5- Hydrazine hydrate.

6- Acrylic acid. 7- Methyl methylacrylate.

8-Ammonium nitrate fertilizer 9-Phenolic Resins. 10- Nylon 6, 6.

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Prof. Abd-elbaset shokr **Assistant.Prof. Seham Abd-elatif**

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT			
	FINAL EXAM FOR SENIOR STUDENTS (DOUBLE MAJORS)			
	COURSE TITLE:	INDUSTRIAL CHEMISTRY (CH4155)		TIME ALLOWED:
DATE: JANUARY 01, 2018		TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	2 HOURS

Question 1:

1) Compare between each pair of the followings: **(9 Marks)**

a) Properties of diamond and graphite.

b) Commodity and fine chemicals (with examples).

c) SMR and POX.

2) Show with diagram only the extraction of sulfur. **(2 Marks)**

3) Write the uses of hypochlorous acid. **(2 Marks)**

Question 2:

1) Show only by equations: **(8 Marks)**

a) Synthesis of diamond.

b) Hydrogenation and oxidation steps for the manufacture of hydrogen peroxide.

c) Ostwald process.

d) Urea process for the synthesis of hydrazine.

2) Give reasons for the followings: **(4 Marks)**

a) Addition of carbon and silica during the manufacture of white phosphorous.

b) Addition of superheated water during the extraction of sulfur.

Question 3:

1) Give a brief account on the most common types of dyes with chemical structures of each kind. **(4 Marks)**

2) Compare in a short notes between: **(4 Marks)**

a) Edible and inedible fats

b) Saponification value and iodine number

Please turn over

Examiners: Prof. Ahmed Elbarbary, Dr. Mohamed Sadek, Prof. Nadia Elwakeel, Dr. Wael A. Amer

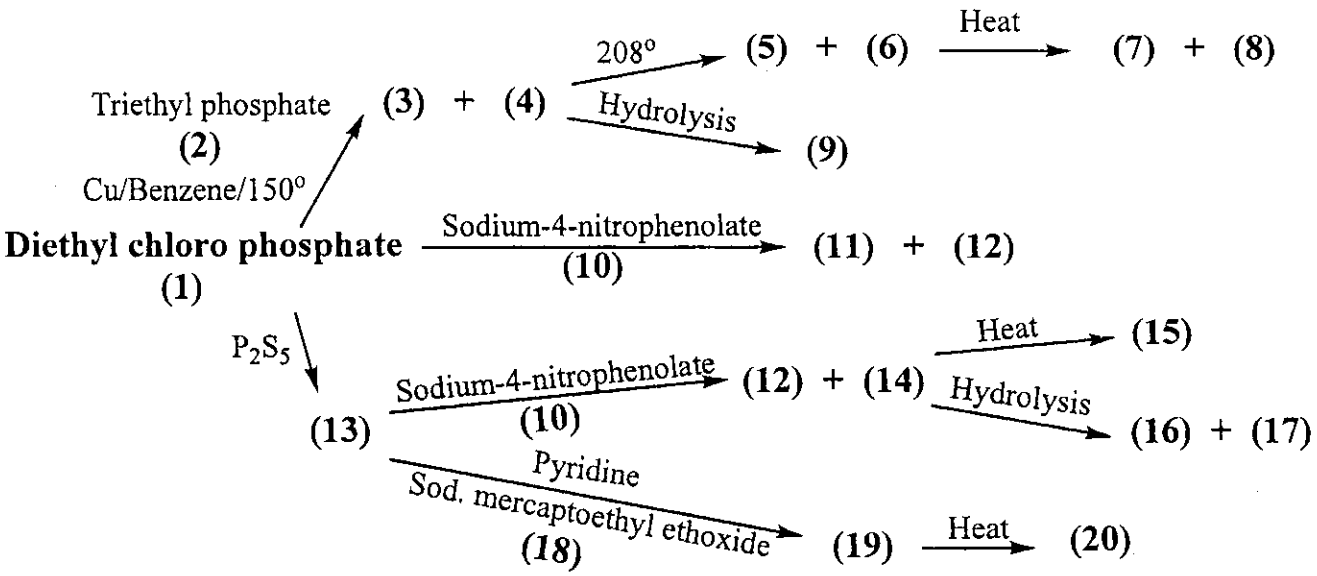
	Tanta University, Faculty of Science, Chemistry Department		
	Examination for Fourth Level (Credit Hours) Students		
	Course Title	Chemistry of Pesticides	Course Code: CH4119
Date:	3 January 2018	Total Assessment Marks: 50	Time Allowed: 2 hrs

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

a) Metabolism of carbofuran.

b) Merits and demerits of organophosphorous compounds as pesticides.

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



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

a) Nornicotin b) Ethylchlorobenzilate c) Chlordan

d) Bis-(*p*-chlorophenoxy) methane e) Sodium fluosilicate

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

a) 4-Chlorobenzaldehyde + Nitroethane → **A** —Chlorobenzene→ **B**

b) Trichloro acetaldehyde + Chlorobenzene —c. H_2SO_4→ **C** —Drastic nitration→ **D**

c) DDT —alc.KOH→ **E** —Hydrolysis→ **F**

d) DDT —Zn dust/EtOH→ **G** —alc.KOH/300°→ **H**

e) Carbaryl —epoxidation→ **I** —hydrolysis→ **J**

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V) Carryout the following conversions (10 Marks):

a) DDT to 1,1-bis(4-chlorophenyl)ethene b) Acetylene to aldrin

c) Mercuric bromide to alkyl mercuric hydroxide d) Ethanol to methoxychlor

e) Carbon disulfide to ferric dialkyl dithiocarbamate

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

Prof. Dr. Ahmed El-Barbary

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY		
	FINAL EXAM FOR SPECIAL CHEMISTRY STUDENTS		
	COURSE TITLE: LASER CHEMISTRY		COURSE CODE: CH4113
DATE:11 JANUARY 2018	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME: 2 HOURS

Answer the following questions:

1- Lasers have many advantages over traditional sources of electromagnetic radiations. Use concise schemes and/or drawings illustrating laser application in each of the following (14 marks):
(a) Synthesis of vinyl chloride starting from 1,2-dichloroethane.
(b) Isotope separation
(c) Modification of surfaces
(d) Laser welding of detached eye retina
(e) Laser capture microdissection (LCM)
(f) Laser lithotripsy to fragment calculi
(g) Single photon counting technique used in lifetime measurement.

2- The tunneling phenomenon is an important quantum-mechanical phenomenon. In the light of this phenomenon, answer the following (6 marks):
(a) Give the mathematical expression of the transmission probability T(E).
(b) Explain the non-linear Arrhenius plots of aziridine inversion.
(c) The splitting of vibrational spectral lines in ammonia as a source of masers.

3- Draw and label each of the following (18 marks):
The modified Jablonskii diagram, the energy level diagrams in each of the following types of lasers: Excimer laser, semi-conductor solid state laser, He – Ne laser, CO_2 laser and proton transfer dye laser.

4- In thermal lensing technique (a) write equation of intensity change as a function of time, (b) draw the experimental setup of the apparatus, (c) draw the trace output and (e) draw a typical energy diagram for singlet oxygen sensitization showing the rate determining step in the sensitization process. (8 marks)

5- In no more than two lines, give the key reason(s) for each of the following:
(4 marks): i- Carbonyl compounds are common triplet sensitizers
ii- R6G-I^- is fluorescent in ethanol but non-fluorescent in $CHCl_3$.
iii- KI is usually added to Raman measurement samples.
iv- $HClO_4$ rather than HCl is usually used to adjust acidity in laser media

End of Exam

Examiners: Prof. Dr. El-Zeiny Mousa Ebeid and Prof. Dr. Samy Abdallah El- Daly

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	Tanta University - Faculty of Science - Botany Department			
	Examination for Junior (4th Year Chem - Micro)			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: BO 4123
Date	Jan 2018	Term: First	Total Assessment: 50 Marks (BO 4105)	Time Allowed: 2 Hr

درجتان ونصف لكل نقطة

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 الحجم أم المحميات العديدة صغيرة الحجم، ولماذا؟

٦- وضح كيف أن بعض الأنواع تشارك اكثر من غيرها فى التنوع الحيوى لمنطقة ما؟
٧- ما الفرق بين إسترجاع وإعادة تأهيل المجتمعات النباتية؟
٨- ماهو التركيز السيادى النسبى، وكيف يمكن حسابه؟
٩- وضح باختصار المقصود بمقياس التصنع كأحد مقاييس الحالة الفطرية للبيئات الطبيعية؟
١٠-ماهو المقصود بمراكز التنوع النباتى، وكيف يتم اختيارها طبقا للإتحاد الدولى لصون الطبيعة (IUCN)؟

١١- عرف العائد النوعى (تنوع بيتا)؟
١٢- ما المقصود بمحمية المحيط الحيوى؟
١٣- مالفرق بين القيمة التعليمية والقيمة العلمية للمحميات الطبيعية؟
١٤- ما المقصود بخاصية القابلية للإحلال أو الإيجاد؟
١٥- قارن بين خاصية التفرد وخاصية الندرة؟

١٦- ماهى ظاهرة الدفينة، وما أهم الأسباب المؤدية إليها؟
١٧- ما المقصود بالهشاشة البيئية؟
١٨- عرف تنوع الحيوى؟
١٩- قارن بين محمية المعزل الطبيعى و محمية الموارد الطبيعية؟
٢٠- قارن بين الندرة الطبيعية والندرة المكتسبة؟

مع تمنياتنا لكم بالتوفيق
لجنة الممتحنين: أ.د. كمال شلتوت & أ.د. داليا أحمد

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	THEORITICAL EXAMINATION FOR 4TH YEAR STUDENTS OF CHEMISTRY/ MICROBIOLOGY			
	COURSE TITLE: PHYSIOLOGY OF ALGAE			COURSE CODE: BO 4123
1969	DATE: JAN 2018	TERM: 1	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2H.

Question 1: Give short notes on the followings (40 marks)

1- Batch algal cultures: definition, function, advantages and disadvantages.

2- Chemical structure of vitamin B_{12} and its three analogous.

3- Photobioreactors for algae: uses, advantages and disadvantages.

4- Chemical structure of the chlorophyll molecule.

5- Photoassimilation of acetate by algae.

6- Nitrogenase enzyme composition and its role in nitrogen fixation process.

7- Photorespiration via glycolate pathway. What are the purposes of this process?

8- Carotenoids pigments and their role in photosynthesis process.

Question 2: Correct the underlined words on the followings (20 marks)

1. Continuous cultures are used for mass production process like biodiesel.
2. Stirring is used to maintain the pH of an algal culture while aeration supplies it with energy.
3. Salinity is a limiting factor in sea water algal cultures.
4. FAD and glutathione are needed for nitrogen fixation process.
5. In chemotrophy, light energy is converted into chemical energy of ATP and $NADPH_2$.
6. The chlorophyll is extracted using chloroform and then identified by weighing.
7. Cu and Si are inorganic macronutrients for algal growth.
8. Closed indoor algal cultures are easily exposed to contaminations.
9. The violaxanthin is the type of phycobiliproteins found in Rhodophyta.
10. Euglenophyta members are considered autotrophic algae while chlorophyta are auxotrophic.
11. The inflow medium is usually added according to the generation time in batch culture systems.
12. Inoculum age and size are factors affecting the phase of declining relative growth in algae.
13. Mixing and pH are factors affecting nitrogen fixation by algae.
14. Chlorophyll C is characterized by two spectra light bands in the blue region.

Question 3: Explain the following scientific terms (20 marks)

1- Mixotrophic and heterotrophic algae.

2- Thiamine requirement by algae.

3- Combined nitrogen affects nitrogen fixation by algae.

4- The turbidostat and chemostat algal cultures.

5- The oxytroph and haplotroph algae.

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