Tanta University	Faculty of Science	Chemistry Department	
Final Examination - level four students		Special Botany and Zoology Sections	
Course Title:	Biochemistry 1		Course Code:CH4173
Jan. 2015	Term: First Semester	Total Marks 100	Time allowed: 2 hrs.

Answer the following questions:-

1)- Explain how each of the following conversions takes place : (25 marks)
a- Succinyl CoA is obtained from α-keto glutarate.
b- D-glucose is degraded into the metabolite 3-phosphoglyceric acid.

2)- Write down on: (25 marks)
a- The equations which represent the biosynthesis of D-Fructose -6-phosphate by transketolase and transaldolase enzymes.
b- The reaction equation and mechanism of oxidative deamination of L-alanine by flavoenzymes.

3)- Answer each of the following: (25 marks)
a- Write ***Only*** the corresponding reaction equation, enzyme and coenzyme of each:-
i- Lactic acid into pyruvic acid. ii- Acetyl CoA into malonyl CoA.
iii- Tyrosine into Dopa.
b- Write the biosynthetic pathway of OAA from Pyruvic acid.

4)- Show how each of the following takes place: (25 marks)
a- "PLP functions in decarboxylation reactions", give examples.
b- Oxalo acetic acid can form α-ketoglutaric acid.

Good Luck
Dr. Yehia A. Hafez

TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT CHEMISTRY				
Final EXAMINATION for 4th YEAR students of Botany				
COURSE TITLE:	Biopolymer Chemistry			COURSE CODE: CH4179
DATE:	JANUARY15TH 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions

1- Define biopolymers 5 marks

2- Show some examples of types of biopolymers 5 marks

3- Describe monomer, polymer, and oligomer. 5 marks

4- Types of free radical polymerization initiators. 7 marks

5- Steps of free radical polymerization. 5 marks

6- Solution polymerization technique as a method for biopolymer synthesis. 4 marks

7- Biopolymers versus polymers, explain the difference 5 marks

8- Describe the suspension polymerization technique 6 marks

9- Write the sign (√) or (X) in the front of each statement: 8 marks

I) Biopolymers are not produced by living organisms (.......)

II) Synthetic polymers are human-made polymers. (........)

III) Polystyrene (PS) is a biopolymer (.........)

IV) Gelatin is a biopolymer (.........)

مع تحياتى

ا.د :الرفاعى قناوى

باسك خامس

	Tanta University Faculty of Science Chemistry Department		
	Examination for (Credit hours) Students		
	Course Title	Pesticides	Course Code: CH4119
Date:	January 2015	Total Asssessment Marks: 50	Time Allowed: 2 hrs

I) Mark (√) for the write and (×) for the wrong statements and correct the wrong one (14 M):

1. Action of chlordane on insects is fast, so it is mixed with alkaline pesticides e.g lime sulpher. ( )
2. Pesticides applied indoors usually breakdown at a faster rate due to the lack of sunlight. ( )
3. Methyl parathion is hydrolysed 4.3 times faster in alkali than parathion. ( )
4. Arsenites are more soluble than arsenates and more poisonous to animals and plant life. ( )
5. Persistent insecticides have half-life time less than 30 days. ( )
6. Acute toxic effect arises from long term exposure to small quantities of pesticides. ( )
7. Technical grade of Systox is a mixture of thiono isomer (70 %) and thiolo isomer (30 %). ( )

II) Choose the correct answer and write the full chemical equation (12 M):

1) Dehydrochlorination of DDT followed by CrO_3 oxidation gives:

a) *p,p*-Dichloro benzophenone b) DDD c) Bis(4-chlorophenyl)-1-chloroethane

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 con. HNO_3 on parathion gives:

a) Demeton b) Paraoxon c) Malathion

4) Treatment of HCCP with cyclopentadiene followed by chlorine gives:

a) Chlordane b) Heptachlor c) Endrin

III) Write the chemical structure of the following pesticides (12 M):

1) Parathion 2) DDD 3) Systox 4) Paris Green 5) Nornicotine 6) Bordeaux mixture

IV) Complete the following chemical equations: (12 M):

1) Diethyl chlorophosphate + triethyl phosphate —Cu/benzene/150^0 → A —Hydrolysis→ B

2) Trichloro acetaldehyde + anisole + c. H_2SO_4 → A —alc. KOH→ B

3) Sec.amine + NaOH + CS_2 → A —ZnO→ B

4) Carbrayl —Epoxidation → A —Hydrolysis→ B

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

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION (JANUARY 2015) FOR THE FORTH YEAR BOTANY/CHEMSITRY STUDENTS			
	COURSETITLE	PLANT MOLECULAR PHYLOGENY		COURSE CODE: BO4105
DATE:	JANUARY, 2015		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions:

1) Put √ or X with correction the wrong sentences : (20 Marks/20 mins)
   a) Molecular data is a part of phylogenetic data. ( )
   b) Immunoassay is considered as a non molecular data to study the phylogenetic relationship. ( )
   c) Genomic DNA refers to that the DNA locates in nucleus only. ( )
   d) Each amino acid is coded for by at least one triplet of nucleotide bases in DNA. ( )
   e) Molecular phylogeny methods allow, from a given set of aligned sequences, to suggest a phylogenetic tree which is called true tree. ( )
   f) Classifications should encompass as many variable characters as possible, these characters being analysed by rigorous mathematical methods. ( )
   g) Paralogs are genes related by duplication within a genome. ( )
   h) A phylogenetic tree is characterized by it topology and its width. ( )
   i) In maximum Parsimony, a phylogenetic tree explains the data with as few evolutionary changes as possible. ( )
   j) Wallace effect is the process by which natural selection decreases reproductive isolation. ( )

2) Give the reasons: (30 Marks/30 mins)
   a) Studying DNA for phylogenetic is more realistic than protein. (10 Marks)
   b) Phenetics is more accurate than cladistic. (10 Marks)
   c) Cladistic does not give equal weight to all characters. (10 Marks)

3) Answer the following (30 Marks/30 mins)
   a) How does restriction fragment length polymorphism (RFLP) work? (15 Marks)
   b) Explain allozymes as a source of phyologenetic data. (10 Marks)
   c) What does cladogenesis mean? (5 Marks)

4) Write on the following: (20 Marks/20 mins)
   a) Parapatric speciation. (10 Marks)
   b) Wallace effect. (10 Marks)

With all our best wishes

Examiner committee: *Prof. Dr. Adel El-Shanshoury* *Dr. Mohamed Elhiti*

	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4th YEAR SPECIAL BOTANY)			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: BO4105
Date	Jan 2015	Term: First	Total Assessment: 100 Marks	Time Allowed: 2 Hrours

السؤال الأول

ما المقصود بكل من المصطلحات التالية (50 درجة):

1 - ظاهرة الدفيئة

2 - الهشاشة البيئية

3 - التنوع الحيوى

4 - القيمة التعليمية للمحميات الطبيعية

5- خاصية التفرد

السؤال الثانى (50درجة):

1- قارن بين تنوع النقطة وتنوع ألفا

3- قارن بين محمية المعزل الطبيعى و محمية الموارد الطبيعية

5- قارن بين الندرة الطبيعية والندرة المكتسبة

6- كيف تفرق بين عملية استرجاع وعملية إعادة تأهيل مواقع التنوع الحيوى المتدهورة

9- وضح كيف أن بعض الأنواع تشارك اكثر من غيرها فى التنوع الحيوى لمنطقة ما ؟

Examiners: Dr. Kamal Shaltout, Dr. Abd El-Fattah Abo-Mohra & Dr. Samah Al-Debaiky

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION (JANUARY 2015) FOR THE FORTH YEAR BOTANY SPECIAL STUDENTS			
	COURSETITLE	GENETIC ENGINEERING		COURSE CODE: BO4103
DATE:	JANUARY, 2015		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Please note that the exam is prepared in 2 pages

Answer the following questions:

1) Explain two of the following with labeled diagram : (20 Marks/20 mins)
   a) The extension stage of PCR amplification.
   b) TA cloning.
   c) Diagnosis of genetic disease by PCR.
   d) Methods for DNA fragmentation.

2) Give the reasons: (15 Marks/15 mins)
   a) The genomic DNA must be treated by restriction enzyme before making a DNA genomic library.
   b) Using nickel (Ni^{+2}) for purification of histidin tagged protein.
   c) *E. coli* is used for protein production.

3) Insulin is very important protein and is consider a national security issue. It is really important to have our own insulin. (30 Marks/30 mins)
   a) Explain a method to produce insulin protein using prokaryotic expression system (T7 expression system). (15 Marks)
   b) Explain a method to purify the produced insulin. (10 Marks)
   c) Discuss the suitability of this method to express an eukaryotic protein such as insulin. (5 Marks)

4) Answer the following: (20 Marks/20 mins)

A) Complete the following sentences: (10 Marks)

   a) DNA fragment libraries are designated as being either a ..... library or a ..... library.
   b) T-DNA is flanked by two 25 bp imperfect direct repeats known as ..... and ..... sequences.
   c) Direct nuclear transformation includes ....., and .....
   d) Restriction enzyme cuts at specific sequence called ..... which may consists of ....., ..., or ..... nucleotides.
   e) Genomic libraries contain fragments of all ..... sequence present in .....

B) You're amplified a DNA fragment of 2.5 Kb. The annealing temperature of the used primer is 61 °C (for the forward), and 56 °C (for the reverse). Design a PCR program to isolate this fragment of DNA. (10 Marks)

نبات خاص (٤)

	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4th YEAR SPECIAL BOTANY)			
	Course Title	الكتابة العلمية والعروض		Course Code: BO4113
Date	Jan 2015	Term: First	Total Assessment: 100 Marks	Time Allowed: 2 Hrours

أجب على كل من الأسئلة العشرة التالية (100 درجة)

1- أذكر أهم أنواع الكتابة العلمية.

2- ما المقصود بالكلمات المفتاحية وما الهدف منها.

3- أذكر ثلاثة من أهم مميزات العنوان الجيد.

4- أذكر ثلاثة من أهم مميزات الملخص الجيد.

5- ما هو الهدف الأساسى من مقدمة أى نوع من الكتابة العلمية.

6- أذكر ثلاثة من أهم ما يجب مراعاته عند الشروع فى كتابة النتائج.

7- وضح كيف تعد المناقشة أصعب الأجزاء فى الكتابة العلمية.

8- ماهى أشهر الطرائق المستخدمة فى كتابة المراجع.

9- ما الذى يجب أن تحتويه كلمة الشكر.

10- متى يجب ومتى لايجب كتابة تفاصيل الطرائق المستخدمة فى إعداد البحث العلمى.

Examiners:

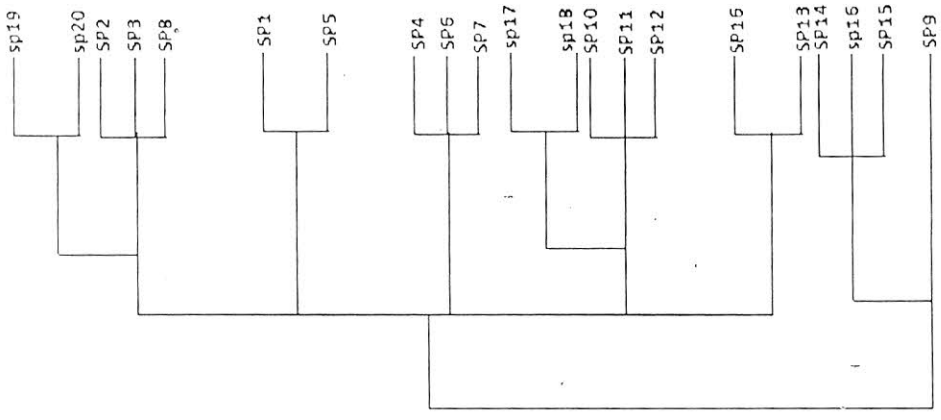
Dr. Kamal Shaltout, Dr. Shimaa Abd El-Hamid & Dr. Anour Al-Badry

TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
FINAL EXAMINATION (JANUARY 2015) FOR THE FORTH YEAR BOTANY/CHEMSITRY STUDENTS			
COURSETITLE	PLANT MOLECULAR PHYLOGENY		COURSE CODE: BO4105
DATE: JANUARY, 2015		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Please be advised that the exam is prepared in <u>two</u> pages.

Answer the following questions:

1) Using DNA sequence technology we were able to deduce the following phylogenetic tree for 20 different accessions of the same species: (30 Marks/30 mins)



Using the previous tree, answer the following question:

a) Describe this tree phyologenetically. (10 Marks)
b) Identify the out grouping species. (5 Marks)
c) Although sp17, sp18, sp19, and sp20 were collected from the same location, they divergent to different groups. (Give the reason) (5 Marks)
d) Explain how the DNA sequence technology is working to study the phylogenetic relationships among plants. (10 Marks)

2) Give the reasons: (20 Marks/15 mins)

a) It is better to use genomic DNA sequence for studying phylogenetic relationships among different accession under the same species rather than any other method. (7 Marks)
b) Most phylogenetic methods produce unrooted trees. (7 Marks)
c) Phenetics is more accurate than cladistic. (6 Marks)

3) Complete the following sentences: (20 Marks/20 mins; 2 marks each point)

a) ..... are genes related by duplication within a genome.
b) A phylogenetic tree is characterized by it's ..... and .....
c) Evolution requires genetic variation which results from changes within ....., the genetic make-up of a specific population.

	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4TH YEAR MICROBIOLOGY-CHEMISTRY)			
	Course Title	الحفظ و التنوع الحيوى		Course Code: BO4123
Date	Jan 2015	Term: First	Total Assessment: 50 Marks	Time Allowed: 2 Hrours

السؤال الأول

ما المقصود بكل من المصطلحات التالية (25 درجة):

1 - العائد النوعى (تنوع بيتا)

2- محمية المحيط الحيوى

3– القيمة التعليمية للمحميات الطبيعية

4- خاصية القابلية للإحلال أو الإيجاد

5 - محمية التراث العالمى

السؤال الثانى (25 درجة):

1- قارن بين الفطرة الأولى والفطرة الثانية

2- قارن بين الحالة الطبيعية غير المضطربة والحالة الطبيعية المضطربة

3-ماهو اكبر مسبب لانقراض الأنواع

4- ماهى مبررات صون التنوع الحيوى

5- أيها أفضل: المحميات المفردة كبيرة الحجم أم المحميات العديدة صغيرة الحجم، ولماذا؟

Examiners: Dr. Kamal Shaltout, Dr. Mohamed Al-Anour & Dr. Anour Al-Badry

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION (JANUARY 2015) FOR THE FORTH YEAR BOTANY/ CHEMISTRY STUDENTS			
	COURSETITLE	GENETIC ENGINEERING	COURSE CODE: BO4131	
DATE:	JANUARY, 2015	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS	

Please note that the exam is prepared in 2 pages

Answer the following questions:

1) Explain two of the following with labeled diagram : (20 Marks/20 mins)
   a) The effect of heat on DNA double helix.
   b) Reverse Transcriptase (RT) PCR.
   c) Expression vector.
   d) Histidin tag purification of protein.

2) Give the reasons: (15 Marks/15 mins)
   a) Taq polymerase is stable under high temperature (95 °C).
   b) When you design primers for a PCR reaction, you must to avoid high percent of complementation of the two primers (paring between the two primers).
   c) Tac promoter is better than Lac prompter for protein production in *E. coli*.

3) α amylase (anti inflammatory protein) is very important protein and is produced by some pharmaceutical companies. (30 Marks/30 mins)
   a) By diagram only show how to design an expression system using *E. coli* for this protein and mention the advantage of this system. (15 Marks)
   b) Explain how to purify this protein. (10 Marks)
   c) Is this system suitable for protein production at pharmaceutical companies? (5 Marks)

4) Answer the following: (20 Marks/20 mins)

A) Complete the following sentences: (10 Marks)

   a) PCR is the ..... of specific DNA sequence in .....
   b) cDNA libraries contain ..... copies of ..... and are tissue and developmental stage specific.
   c) Proteins are over-produced by placing the ..... encoding them under control of a .....
   d) Restriction enzyme cuts at specific sequence called ..... which may consists of ....., ..., or ..... nucleotides.
   e) Most commercially available expression vectors contain the Replication Origin of either ..... or .....

B) You're amplified a DNA fragment of 700 bp. The annealing temperature of

	Tanta University Faculty of Science Botany Department	
Theoretical exam.	Assessment = 100 marks.	Time allowed: 2 hours.
Course Title: Biocontrol of plant diseases.		Course code: MB4141.
Special Botany program.		Academic year: 2014/2015.
Juniors (Level: 4 – Semester: 1)		4 January 2015.

(1) Give the definition of **5 only** of the following: (10 marks)

1. Conservation biological control.
2. Natural root grafts.
3. Pre-harvest interval of biofungicide.
4. Biological control in plant pathology.
5. Parasitoid.
6. Specific suppressive soil.
7. Competition.

(2) Write in details about: (20 marks)

1. *Bacillus thuringiensis* as a pathogen used in biological control process.
2. Commensalism.
3. Biological control of *sphaerotheca fuliginea*.
4. *Gliocladium* as Mycofungicide.

(3) Put ✓ or ✗ in front of the following sentences then correct the false sentences: (10 marks)

a. The mycofungicide Plant Shield® is comprises from spores of *Chaetomium*.

b. Citrus fruits are coating with BCAs in wax to protect them from post-harvest diseases.

c. Control of *Sclerotium rolfsii* by *Serratia marcescens* appeared to be mediated by amylase expression.

d. The action of any organism that suppresses the normal growth of a plant pathogen refers to neutralism.

e. The BCAs are safer to the environment and are difficult to handle and apply to the target.

قضايا بيئية

رابعة نبات خاص

TANTA UNIVERSITY
FACULTY OF SCIENCE
BOTANY DEPARTMENT

امتحان الفصل الدراسى الأول للفرقة الرابعة نبات خاص

Course Title:	Environmental Issue		Course Code: Bo 4111
January, 2015	Term: First	Total assessment marks: 100	Time Allowed: 2hour

السؤال الأول: ضع علامة (√) أو (x) أمام العبارات التالية، مع تصويب الخطأ (**٣٠ درجة**)

١- ترتبط كمية غاز الأوزون مع الضغط الجوي ارتباطا عكسيا ( )

٢- تتميز طبقة الاستراتوسفير بالصقيع الشديد ( )

٣- الرعي الجائر من أسباب التصحر ( )

٤- المحميات الطبيعية هي نظام بيئي محمي للعمل على صيانة ورعاية الأحياء الفطرية ( )

٥- طاقة الرياح من الطاقات المتجددة باهظة التكاليف ( )

السؤال الثاني: ناقش رأي العلماء حول ظاهرة الاحتباس الحراري موضحا الرأي الذي تؤيده (**١٠ درجات**)

السؤال الثالث: بما تفسر كلا مما يأتي (**٣٠ درجة**)

١- رغم توافر الفحم الحجري الا أنه يستخدم في نطاق محدود (١٠ درجات)

٢- يتكون غاز الأوزون فوق المناطق الحارة، بينما سمك طبقة الأوزون تبدو أسمك فوق القطبين مقارنة بالمناطق الحارة (١٠ درجات)

٣- عدم استخدام الطاقة الكهرومائية رغم توافر مصادرها (١٠ درجات)

السؤال الرابع: (**٣٠ درجة**)

١- توفر النباتات الفطرية خدمات للانسان (اذكر ٣ منها) (١٠ درجات)

٢- سلبيات طاقة الرياح (١٠ درجات)

٣- أهداف المحميات الطبيعية (١٠ درجات)

Examiners: Prof. Kamal Shaltout and Dr. Dalia Abd El-Azeem Abd El-Azeem Ahmed

لجنة المصححين أ.د. كمال حسين شلتوت - د.داليا عبد العظيم أحمد - أ.د. السيد أحمد مرسي - د. عفاف عاطف نسيم