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|  | | | | TANTA UNIVERSITY, FACULTY OF SCIENCE, BOTANY DEPARTMENT | | | |
| Final Examination for level 4 Students (Chem/ Botany) | | | | | | | |
| Course title: | | MYCOLOGY AND PLANTPATHOLOGY | | | | Course Code: MB4232 | |
| DATE:06,JUNE, 2015 | | TERM: SECONDS | | TOTAL ASSESSMENT MARKS: 150 | | Time Allowed: 2 hours | |

Answer the following questions:L-

Section [1]: Mycology

QI-Write on 2 of the following : (37.5mark)

- A- Key to classes of Myxomycota and Mastigomycotina.
- B-Classification of *Allomyces* sp. and describe the life cycle.
- C-Formation of Ascocarps in Ascomycotina.

QII-A-Compare between each of the following: (37.5mark)

- 1-Different genera of Peronosporaceae.
- 2-Homothallic and heterothallic spp. of *Rhizopus*.

B- Key to subclasses of Myxomycetes and describe the life cycle of *Physarum* sp.

Section2: Plant pathology.

QIII- A-Identify the following: (17.5mark)

- 1-Inoculation – Penetration – Invasion.
- 2-Monoecious and Heteroecious pathogens in rust diseases.
- B- Describe stages of the disease cycle of Ergot. (20mark)

QIV-A - Write on the pathogens, symptoms and mechanisms of infection in the following diseases.(20mark)

- 1- Bacterial soft rot of vegetables.
- 2-Clubroot of cabbage.

B- Complete the following: (17.5mark)

- 1-Types of infection in damping off disease,.....
- 2-*Plasmodiophora* present in the soil as.....,andinside the host cell as.....
- 3-Stages of the formation of infection theared.....

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4-Types of spores in Smut disease,.....

5-The occurrence of plant disease depend on.....,.....,.....

6-Types of infection in Smut diseases.....,.....

7-Classes of Basidiomycotina.....,.....,....andclasse....causes rust disease to wheat plant

Best wishes

.Prof.DR. OMYMA AHMED



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

FINAL EXAM FOR FORTH STUDENTS (CHEM/ BIO, ZOL, INS, GEO, MICR, BOT)

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| COURSE TITLE: | SELECTED APPLICATION OF POLYMER | COURSE CODE: CH4246 |
| DATE: JUNE 1, 2015 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 50 |
| | | TIME ALLOWED: 2 HOURS |

1) LDPE and HDPE, both are polymers of ethene but there is marked difference in their manufacturing and properties, Explain? (4 marks)

2) Choose the correct answers: (18 marks)

- i) Natural rubber is:
- (a) Trans-polyisoprene; (b) Chloroprene;
(c) Buna-S; (d) Cis-polyisoprene
- ii) Filler added to polymer to.....
- (a) decrease working time; (b) Decrease the modulus
(c) decrease the cost (d) Decrease thermal properties
- iii) Polymer used in sunglass frame is
- (a) Poly(ethylene); (b) Poly(butadiene);
(c) Poly(cellulose acetate); (d) Poly(ethylene terephthalate)
- iv) Soft drinks and baby feeding bottles are generally made up of:
- (a) polystyrene; (b) polyester, (c) polyurethane (d) polyamide
- v) The miscible polymer blend has only..... phase
- (a) One; (b) two; (c) three; (d) multiple
- vi) Which of the following polymers is opaque, low-density, tough, rigid, non-toxic, and the recycling mark is number 7.
- (a) Polyethylene; (b) Acrylonitrile-butadiene-styrene
(c) Polyethyleneterephthalate; (d) Polytetrafluoroethylene
- vii) Presence of more hydrophilic groups in the backbone of polymers will
- (a) decrease the degradation of polymer

Please Turn Over



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- (b) Increase the degradation of polymer
 - (c) Stabilize the polymer
 - (d) No effect on the polymer

viii) **The purpose of lubrication is**

- (a) To reduce friction,
- (b) To reduce wear,
- (c) Transfer heat produced,
- (d) All of above.

ix) **Dental composites involve the use ofpolymer with inert fillers**

- (a) Teflon;
- (b) acrylic;
- (c) polyethylene;
- (d) urea-formaldehyde

3) **How can we enhance the compatibility between the hydrophobic polymer and natural fibers? Explain your answers by examples. (4 marks)**

4) **Write the mechanism of PLA and PHB production (4 marks)**

5) **Write briefly on five of the following (20 marks)**

- (a) Plasticizers
- (b) UV-stabilizers
- (c) Classification of composites
- (d) Flame retardant
- (e) Manufacturing of crosslinked silicones
- (f) Colorants additives
- (f) Classification of biodegradable polymers


With best regards,

EXAMINERS PROF. EL-REFAIE S. KENAWY

DR. MOHAMED A. ABDELWAHAB

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

FINAL EXAMINATION FOR SENIORS STUDENTS OF DUAL SPECIALIZATION PROGRAM
CHEMISTRY/MICROBIOLOGY, CHEMISTRY/BOTANY AND CHEMISTRY/GEOLOGY

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|---|---------------|--------------------------|--------------|----------------------------|
|  | COURSE TITLE: | SUPRAMOLECULAR CHEMISTRY | | COURSE CODE: CH4218 |
| | DATE: | JUNE 10, 2015 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 50 |

Question (I): **(20 marks)**

A. Choose the correct answers for the following missing parts: **(5 marks)**

- Clathrate hydrates are cages of hydrogen bonded water molecules trapped _____ inside.
 - gases
 - hydrocarbons
 - a and b
 - none of them
- In host-guest complex of $[Al(EDTA)]^-$, the ligand tends to form an _____ geometry around the metal ion.
 - planar
 - octahedral
 - spherical
 - tetrahedral
- Crown ethers are able to bind ammonium ions via _____ within their cavities.
 - cation- π interaction
 - hydrogen bonding
 - ion-dipole interaction
 - π - π interaction
- In high-dilution technique, _____ quantities of reactants with equimolar concentrations are mixed together at a controlled rate in a _____ volume of solvent.
 - large
 - equal
 - small
 - low
- Zwitterionic guests containing aromatic rings are usually bind to the ditopic hosts via _____ and the complex is further stabilized by _____ between the aromatic ring systems.
 - ion-dipole interaction
 - hydrogen bonding
 - hydrophobic effect
 - π - π interaction

B. Discuss in details each of the following: **(15 marks)**

- The catalytic oxidation mechanism of dimethyl hydroquinone using $KMnO_4$ as an oxidant in the presence of [18]crown-6.
- The exo-template synthesis of azo-macrocyclic hosts. Explain how Ni^{+2} ions can be removed from its inert complex with macrocyclic ligand and the major disadvantages of employing this template effect.
- Clathrate hydrate. (Illustrate your answer with structures)

Continue to the other parts of the exam

Question (II):

(15 marks)

A. Differentiate between each pair of the following:

(10 marks)

(Illustrate your answer with examples)

- 1- Crown ethers and Lariat ethers for NH_4^+ complexation. (Illustrate your answer with structures, binding constants and define the type of supramolecular interaction)
- 2- Cascade and ditopic hosts.
- 3- Proton sponge and hydride sponge.

B. Complete the missing parts of the following statements:

(5 marks)

- 1- The complex system with a bidentate ligand is more stable than that of using unidentate ligands due to _____ and _____.
- 2- Podand is a _____ species with two or more sets of guest-binding functional groups, while macrocycle is a _____ usually with nine or more atoms in the ring.
- 3- Katapinands are _____ that are able to bind _____.
- 4- Cryptand hosts display a peak selectivity for binding metal ions in which cryptand with four oxygen atoms is selective for _____ cation, while the cryptand that contains six oxygen atoms is selective for _____ cation.
- 5- Thiourea channels are slightly _____ than that of urea clathrates due to _____.

Question (III): Give full account on the following:

(15 marks)

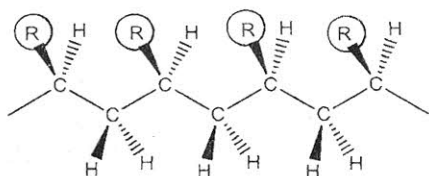
- 1- Cyclodextrins Hosts based neutral-molecule binding.
- 2- The anion host design principles and how to overcome the non-directional nature of electrostatic interactions.
- 3- The ion-transportation mechanism of K^+ into the biological cell using Valinomycin carrier. (Illustrate your answer with figures showing the nature of cell membrane)

Best Wishes

Examiners

Prof. Dr. Dina M. Abd El-Aziz

Dr. Nagy Labieb Kamal

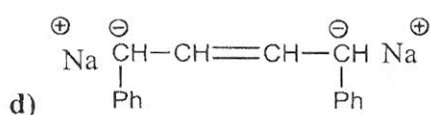
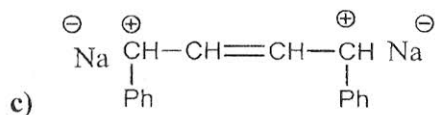
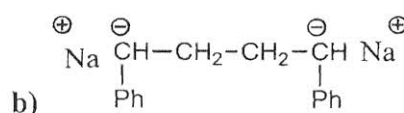
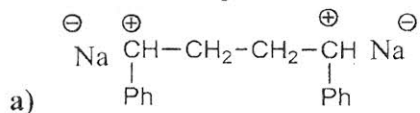


vii)

The following structure isstructure.

- (a) Atactic; (b) isotactic; (c) syndiotactic (d) crosslinked

viii) Reaction of styrene with Sodium give:



3) Write the types of initiators for free radical polymerization (4 marks)

4) Write briefly on four of the following (20 marks)

- (a) Isomerization polymerization (b) Interfacial polymerization
 (c) Vulcanization of rubber (d) Suspension polymerization
 (d) Chain transfer termination (f) Ion exchange resin



With best regards,

EXAMINERS

PROF. EL-REFAIE S. KENAWY

DR. MOHAMED A. ABDELWAHAB

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|--|---|-----------------|-----------------------------|---|
|  | TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY | | |  |
| | EXAMINATION FOR FRESHMEN (FOURTH YEAR) STUDENTS OF CHEM /BOTANY | | | |
| COURSE TITLE: | ECONOMIC USES OF ALGAE | | COURSE CODE: BO4210 | |
| DATE: 8/6/2015 | JUNE, 2015 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 100 | TIME ALLOWED: 2 HOURS |

I - Choose the correct answer:-

(20 Marks)

- Kombu is the Japanese name for the dried seaweed that is derived from a Mixture of
a) *Jania* sp. b) *Laminaria* sp. c) *Ulva* sp. d) *Porphyra* sp.
- The low quality agar is used in
a) Food product b) culture media c) electrophoresis d) a+b
- The algae harvested from treatment ponds are widely used in.....
a) Nitrogen and phosphorus supplement b) Agriculture purpose c) Biodiesel d) All
- Halogenated compounds are produced naturally mainly by marine
a) Red algae b) green algae c) Brown algae d) a+c
- In making biodiesel, transesterification is catalyzed by
a) acids b) alkalis c) lipase enzyme d) All previous
- The most highly purified agar called.....
a) Agarophytes b) Agaropictin c) Agarose d) None
- Natural algacides could effectively be applied in
a) Water treatment b) algalization c) control of toxic algal blooms d) a+b
- The anti-HSV factor from *Dunaliella* sp. inactivates the viral function at
a) Stage II b) Stage III c) a+b d) Stage I
- The metal ions are adsorbed over the cell surface very quickly just in a few seconds or minutes; this process is called.....
a) chemisorptions b) Rapid uptake c) Adsorption d) All previous
- The Soil microorganisms commonly aggregate soil particles to form
a) Organic matter b) Soil crust c) Soil algae d) a+c

II- Put sign (✓) front the correct answer and sign (X) front the wrong answer and correct the wrong answer:-

(20 marks)

- Fertilizers only supply nutrient to the soil but soil conditioner enhances the physical, chemical and biological health of soil. ().
- Algae cannot directly produce HUFAs such as arachidonic acid (ARA, 20:4n-6) like terrestrial crops. ().
- Agar are more widely used than Carrageenans as emulsers/ stabilizers in numerous foods, especially milk-based products. ().
- Artificial diets have natural sources of pigments that give organisms such as salmon their coloration ().
- Laminarin is one of the major polysaccharides found in red algae with antiviral and antibacterial properties ().
- Alginate made up of mannuronic acid and guluronic acid and extracted from Phaeophyceae ().

من فضلك انظر خلف الصفحة

- 7- The first antibacterial compound from a microalga, *Chlorella*; a mixture of fatty acids, called chlorellin ().
- 8- Macroalgae have much more oil than microalgae and it is much faster and easier to grow and yields high amount of lipids. ().
- 9- The Parent oil used in making biodiesel consists of diglycerides ().
- 10- The difficulties in soil reclamation in arid and semi-arid regions are mostly the salinity conditions of large soil areas ().

III-Complete the following:-

(20 marks)

- 1- The Agar and carrageenan are mainly extracted from
- 2- Phycoremediation is.....
- 3- cyanobacteria have ability to exude plant growth hormones including.....,.....and.....
- 4- pharmaceutical uses of carragenans, including,.....and.....
- 5- The function of Polyphosphate bodies areand.....
- 6- The antimicrobial activity of microalgae has been attributed to compounds belonging to several chemical classes ,including,.....,..... and.....
- 7- Docosahexaenoic acid (DHA) is important forand..... in infants and has been shown to support health in adults.
- 8- The metal tolerance can be attributed also to ultrastructural changes of algal cells like and
- 9- The algae have many features that make them ideal for the selective removal heavy metals, which include,.....and
- 10-Algalization is

IV- Write short note about the following:-

(20 Marks)

- 1- *Spirulina* as excellent human food.
- 2- Algae as a source of antioxidant.
- 3-Important of algal crust.
- 4- Role of microalgae in aquaculture hatcheries.
- 5- Why algal biodiesel?

V- Explain the following:-

(20 Marks)

- 1- Advantages of algal biodiesel over petroleum fuels.
- 2- Why blue green algae are good soil conditioner.
- 3- General attributes of microalgae used in aquaculture.
- 4- Why seaweed is important.

With my best wishes ,,,,,,,,,,

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| EXAMINER | DR. Rania EI-Shenody |
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