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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	Examination for Seniors (Fourth year) students of double courses			
	COURSE TITLE:	Analytical Biochemistry		COURSE CODE: 4149
DATE: 22 -1-13	FIRST TERM	TOTAL ASSESSMENT MARKS: 50		TIME ALLOWED: 2 HOURS

Answer all the following questions:

- I- Write the chemical structure of octa-peptide consists of : glu-lys-ser-tyr-cyst-trp-ala-gly. If this octapeptide is hydrolyzed into its constituent and subjected to cation exchanger chromatography on column sulphonated polystyrene to separate out amino acids. pI of glu= 3.1; lys=9.74; ser=5.7; tyr=6.42; cyst=5.3; trp=7.8; ala=6.02 and gly=5.97. The pH of solution buffer that is used equal 3. Arrange amino acids eluted from this column. Explain your results. How can identify the amino acids quantitatively and qualitatively eluted from this column. (10 marks)
- II- How can you determine the molecular weight of protein by using each of the following: (10 marks)
- 1- Mass spectronic methods (MALDI- TOF).
 - 2- SDS polyacrylamide gel electrophoresis.
- III- Fractionate the liver tissue into nucleus, plasma membrane, mitochondria, lysosome, endoplasmic reticulum, golgi apparatus, prxisomes and ribosome by using centrifugation, ultracentrifugation and equilibrium density gradient ultracentrifugation. Clarify the markers are used for confirmed separation of peroxisome, mitochondria, lysosome and plasma membrane (10 marks)
- IV- Clarify each of the following: (15 marks)
- 1- ELISA technique and how can you determine hepatitis C virus by using indirect ELISA.
 - 2- Western blot technique to determine the molecular weight of cytochrome C.
- V- How can you separate eluted protein from diethyl amino ethyl cellulose (anion exchange) by using gradient NaCl and pH. (5 marks)

**Many thanks
Best wishes
Prof. Ehab M. M. Ali**

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY		
	INCOMPLETE EXAMINATION FOR CREDIT HOUR STUDENTS		
	COURSE TITLE: LASER CHEMISTRY		COURSE CODE: CH4113
DATE: 23 JANUARY, 2014	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME: 2 HOURS

Answer the following questions (5 marks per point):

1- Using suitable diagrams and illustrations, describe each of the following laser systems:

i – Carbon dioxide laser

ii - Excimer laser

iii- Proton transfer dye laser

iv- Bonding in molecular oxygen O_2 and its first two excited states according to molecular orbital theory.

v- Construct the energy level diagram of species in a typical triplet sensitization experiment in which a mixture of naphthalene and benzophenone was irradiated through a 315 nm cut – in filter given the following absorption data:

For naphthalene $S_0 \longrightarrow S_1$ at 385 nm and $S_0 \longrightarrow T_1$ at 465 nm.

For benzophenone $S_0 \longrightarrow S_1$ at 385 nm and $S_0 \longrightarrow T_1$ at 413 nm.

The cut-in filter that absorbs below 315 nm. [Hint: The energy in $k\ cal\ mol^{-1}$ is obtained as $28500 / \lambda\ (nm)$]

2- The synthesis of vinyl chloride from 1,2-dichloroethane is an important multibillion industrial process demonstrating the advantages of laser applications. Write the reaction scheme and mention the advantages of laser application in comparison with thermal applications.

3- The technique of thermal lensing is an important application on laser collimation.

Draw a time- resolved thermal lensing experimental setup and trace upon using the technique to study singlet oxygen sensitization kinetics.

4 - Discuss each of the following:

(a) The technique of Raman spectroscopy showing energy level diagram, the spectral output and band assignment.

(b) The principle of MUCAP reagent operation

(c) Oxygen sensors based on fluorescence quenching

(d) Photodynamic therapy (PDT)

5 - Explain the reason for each of the following:

(a) Carbonyl compounds are common triplet sensitizers

(b) R6G- I^- solutions are strongly fluorescent in ethanol but non-fluorescent in chloroform.

EXAMINER: PROF. DR. EL-ZEINY MOUSA EBEID

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<p>Tanta university Faculty of science, Chemistry Department Final examination for students of level 4 (chem. sect.) and Level 4 (golo.sect.) and bio chem..section)</p>	
Course Title :Textile chemistry	Course code : CH4124
Total Assessment marks : 50	Time allowed : 2hrs

Answer the following questions :

- 1- Write an account on each of the following :
 - a- Polyamide fibers and compare and contrast the chemical, physical and mechanical properties of nylon 6,6 with those of aramids fibers .
 - b- Polyester fibers .
- 2- a- discuss the concept of grafting as a means of altering the properties of the original homopolymer. illustrate your answer with examples
b- Cross linking of cellulose and regenerated cellulose for crease resist and permanent press treatments .
- 3- Write an essay on the structural feature of wool-keratin and silk-fibroin .
Compare the chemical , physical and mechanical properties of wool with those of silk .
- 4- Write an account on each of the following :
 - a- The chemistry of cellulose and show the effect of crystallinity on its properties .
 - b- Regenerated cellulose rayons
 - c- Chemically modified cellulosic fibers

Examiner : prof.Dr. F.E.Abdelhay

