
	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	FINAL EXAMINATION for Special Chemistry & Material Science Groups			
	COURSE TITLE:	POLYMER CHEMISTRY		COURSE CODE: CH 4105
DATE:	25 JAN 2023	TERM: FIRST	TOTAL ASSESSMENT MARKS: 50 DEGREE	TIME ALLOWED: 2 HOURS

- 1) Write the **name & structure** of monomers for each of the following polymers: **(10 marks, 2 marks for each)**
- a) Polycarbonate,
 - b) Aliphatic polyamide,
 - c) Poly(vinyl chloride),
 - d) Polyurethanes,
 - e) Epoxy resin.
- 2) Write short notes on the following: **(10 marks, 5 marks for each)**
- a) Suspension polymerization techniques,
 - b) Phenol-formaldehyde resin.
- 3) How can you prepare the following: **(10 marks, 5 marks for each)**
- a) Ion exchange resins,
 - b) Block copolymers.
- 4) Write short notes on the following: **(10 marks, 5 marks for each)**
- a) Vulcanized rubber,
 - b) Isomerization polymerization.
- 5) Choose the correct answers: **(10 marks, one mark for each)**
- i) What is the name of the organic compound used to prevent the polymerization of the monomers during storage?
 - a) Accelerator,
 - b) Initiator,
 - c) Inhibitor.
 - ii) What are the monomers used for the formation of Bakelite?
 - a) Urea & formaldehyde,
 - b) Melamine & formaldehyde,
 - c) Phenol & formaldehyde.
 - iii) What is the type of the initiator used in cationic polymerizations?

- a) Acid,
 - b) Base,
 - c) Free radical.
- iv) Which of the following is common anionic initiator?
- a) Benzoyl peroxide,
 - b) Azobisisobutyronitrile,
 - c) Na-metal.
- v) What are the monomers used for the formation of polyurethanes?
- a) Isobutylene & isoprene,
 - b) Diisocyanate & diol,
 - c) Diisocyanate & diamine.
- vi) What is the type of the polymerization of styrene with BuLi?
- a) Ring-opening polymerization,
 - b) Condensation polymerization,
 - c) Living polymerization.
- vii) Which is the characteristic of cross-linked polymers?
- a) Melting on heating,
 - b) Insoluble in all solvent,
 - c) Soluble in organic solvent.
- viii) Which is true regarding addition polymerization?
- a) Monomers contain three functional groups,
 - b) Monomers contain two functional groups,
 - c) Monomers contain olefinic groups.
- ix) What is the type of the polymerization used for the formation of polystyrene?
- a) Condensation polymerization,
 - b) Addition polymerization,
 - c) Stepwise polymerization.
- x) Which is the characteristic of thermoplastic s?
- a) Can be molded,
 - b) Cross-linking between chains,
 - c) Can not be melted.

With best regards,

EXAMINER	DR. AHMED AKELAH	
----------	------------------	--

	TANTA UNIVERSITY ALCULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR LEVEL- 4 STUDENTS - SPECIAL CHEMISTRY SECCTION			
	COURSE TITLE:	BIOCHEMISTRY- 1		COURSE CODE: CH4107
DATE:	JAN. 14 , 2023	TERM : FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer the following questions:-

Q1:- Write down on the following:

(12 Marks)

a- Lactic acid and Alcohol fermentations.

(4 Marks)

b- " PPP is an alternative pathway for degradation of D-glucose via *Five* carbon sugars and generation of $NADPH, H^+$ ". Write the *non-oxidative* pathway. (4 Marks)

c- The biosynthetic pathway of *Pantothenic Acid*.

(4 Marks)

Q2:- Answer the following:

(14 Marks)

a- Explain by equations how the *Gluconeogenic pathway* takes place bypassing the irreversible steps of glycolysis". (4 Marks)

b- Write the *biochemical pathway* including *enzymes, coenzymes and the reaction equation* of the conversion of α -Ketobutyric acid into Propionyl- CoA. (5 Marks)

c- Choose the correct answer: (5 Marks)

The reaction between *Glutamic Acid* and *Pyruvic Acid* in presence of *PLP* is catalyzed by: i- Deaminase. ii- Transmethylase. iii- Aminotransferase.

iv- Monoamine oxidase. (Write the reaction equation and the role of PLP).

Q3:-

(10 Marks)

a- Write the pathway of *Glycogenolysis*.

(4 Marks)

b- Explain by equations the *absolute* and *bond specificity* of enzymes. (4 Marks)

c- Choose the correct answer in the conversion of *Pyruvic Acid* into *OAA* the reaction is catalyzed by:

(2 Marks)

i- Deaminase.

ii- Decarboxylase.

iii- Dehydratase.

iv- Carboxylase.

(Write the reaction equation and Coenzyme)

Q4:- Explain by equations the following:

(14 Marks)

a- *Glyceraldehyde-3-phosphate* forms *Pyruvic acid*.

(5 Marks)

b- *Galactose* metabolism requires *Glycosyl epimerase* enzyme.


(4 Marks)

c- The *Citric Acid Cycle* (CAA), calculating the ATP formed.

(5 Marks)

GOOD LUCK


Dr. Yehia A. Hafez

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR B. SC. STUDENTS			
	COURSE TITLE: LASER CHEMISTRY			COURSE CODE: CH4113
DATE: 18 TH JANUARY 2023	TERM: FIRST 22-23	TOTAL ASSESSMENT MARKS: 50	TIME: 2 HOURS	

Answer the following questions (10 marks each)

- 1- Tunneling of small particles is an important phenomenon of many chemical applications. Discuss this phenomenon and its application to explain splitting in ammonia vibrational spectral lines, non-linear Arrhenius plots and deviation from kinetic isotope effect.
- 2- The application of molecular rigidity effect on fluorescence efficiency in salmonella detection, DNA quantification and fingerprint modification.
- 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- Briefly describe each of the following:
 - (a) The technique of polarized fluorescence and its application in studying drug-protein interactions.
 - (b) The technique of single photon counting and its application in lifetime measurement.
 - (c) Laser applications in isotope separation
 - (d) 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.
- 5 - Draw and label each of the following:
 - (a) Ground and the first two excited states in oxygen molecule giving the appropriate notations.
 - (b) Energy levels in He-Ne laser
 - (c) Energy levels in excimer lasers
 - (d) Energy levels in salicylamide as a proton transfer dye laser
 - (e) Energy levels in carbon dioxide lasers

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

	Tanta University, Faculty of Science, Department of Chemistry		
	Final Exam of Chemistry of Glass/Ceramics [4 th Level- Major Chemistry - Students]		
	Course Title: Chemistry of Glasses & Ceramics		Code: CH4115
Date: 11-1 -2023	1 st Semester		Time: 2 Hours

Part(I).....30 marks

Answer the following:

Q1. True or False (✓ & x), and if it is false correct it:20 marks

1. Sol-Gel techniques is preferable in HTc-Applications.
2. All conduction mechanisms in Glasses are ions-conduction.
3. Na⁺ and Cu⁺ is evidence for Goldschmidt-limitations.
4. Chalcogenide glasses are widely used in infrared transmission applications.
5. Ceramic synthesis via solution routes improve its micro-structures features.
6. Germanate glasses have a chemistry differ than silicates glasses.
7. Silicates oxides glasses are called a complex oxide glasses.
8. In thio-borates glasses boron makes as bridged atom between 4-membered rings.
9. Oxy-nitride glasses, it the type in which oxygen atoms replaced via carbon.
10. Glasses are amorphous solids which are obtained by the super-cooling of melts.
11. Nucleation process is not the only factor governs, the crystallization of glass.
12. Glass formation occurs in materials of all types of bonds.
13. SiO₂ and GeO₂ can be called conditional glasses formers.
14. Microwave- Synthesis of a glass is commonly known as (Chimie Douce Process).
15. Particles sizes of glasses and ceramics can not be controlled.
16. In Anderson Stuart Model electrons passage through O₂-opened-door-atom.
17. Inorganic Oxides is the not suitable as raw materials for ceramics.
18. Co-precipitation technique produced grains is higher than others methods.
19. Low refractive indexes Glasses contains heavy metals as Pb-atoms.
20. Sintering temperature is equal to annealing rate.

تابع باقى الاسئله فى خلف الورقه



With My Best Wishes 2023 Examiner : Prof.Dr. Khaled M. Elsabawy *Professor of Materials Sciences*

QII. Write the Scientific Term/Sentence equivalent to the following;.....(10 Marks)

- ❖ Temperature decreasing rate responsible for glass formation.
- ❖ A solid obtained by super-cooling a liquid and its X-ray is amorphous.
- ❖ Mechanism of ions jumping (hopping) inside glass activation barrier.
- ❖ Goldschmidt- Ratio
- ❖ The interaction of light with electrons of the constituent atoms in a glass.
- ❖ Freeze-Drying Technique.
- ❖ Consists of heating two non-volatile solids which react to form the products.
- ❖ NASICONs Glasses
- ❖ Glasses with heavy, polarizable ions as Pb, Bi, in the form (PbO, Bi₂O₃).
- ❖ Glassy Temperature (T_g).


Part(II).....(20 Marks)

QIII. Write briefly on Only Three of the following:.....(15 marks)

1. Different Models which describe ionic DC-conduction in Glass.
2. Optical features and factors controlled in refractive indexes of Glasses.
3. Goldschmidt's and Zachariasen Rules of glass structural features.
4. Different applied techniques of Glass synthesis? , use examples, and equations as possible.

QIV. Answer Only (a) or (b):.....5 Marks

- a. Mention all major types of glasses, and write in detail only on oxides and Borates glasses types?(use chemical composition tables and equations as possible).
- b. Role of promoters additives in Glass/ceramics industries with examples.

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF GEOLOGY AND GEOPHYSICS			
	COURSE TITLE:	REMOTE SENSING (1)		COURSE CODE: GE 4103
DATE:	2 JAN, 2023	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions, illustrating with drawing when it possible

1- Write SHORT NOTES on the following:- **(40 marks)**

- a. The **spectral** and **geometric** characteristics of the pushbroom scanner, emphasize your answer by the role of CCD-arrays technology to produce a less noise satellite images and off-track viewing advantage of this scanner. (20 marks)
- b. Cosmetic corrections to correct the visible errors and noise in the satellite images. (20 marks)

2- Compare BRIEFLY between the following:- **(45 marks)**


- a. Georeferencing and geocoding geometric processes. (15 marks)
- b. Imaging radar and radar altimeter sensors. (15 marks)
- c. Airborne and spaceborne remote sensing. (15 marks)

3- Explain Why? **(15 marks)**

- a. Most remote sensing systems designed for meteorology include a thermal scanner.
- b. Multispectral scanner is the most useful one in the geologic mapping.
- c. Satellite image data is considered more than a normal picture.
- d. The Whiskbroom scanner is known as across-track scanner.
- e. Landsat series have the most important image archive to the earth.

EXAMINERS	Prof. Alaa A. MASOUD	Prof. Samir Z. KAMH
------------------	-----------------------------	----------------------------

☺Good Luck☺

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	FINAL EXAMINATION for level 4 (Geology) Students		
	COURSE TITLE:	Geochemistry	
DATE:	DEC., 2022	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions:

1-Define the following:

(18 marks)

- | | |
|------------------------|--------------------------|
| a- HFSE | b- Ionic potential |
| b- Clark of an element | c- partition coefficient |
| d-Achondrite | d-element Camouflage |

2-Say Why ?

(16 marks)

- Depletion Eu compared to the other rare earths.
- Sr has various degree of Compatibility in plagioclase and olivine.
- Li is an incompatible element
- MORB exhibits a Eu depletion as compare with upper continental crust.
- Continental crust is enriched in Lithophile elements.

3- Explain the relationship between the following pairs:

(16 marks)

- Behavior of Ba⁺²: 1.43 A° and K⁺ : 1.33 A° during magmatic crystallization.
- Solubility of the rare gases in melts and their atomic radius .
- Incompatible vs. compatible trace elements
- Highly charged HREE and LREE
- Variation of relative trace element concentration and fraction crystallization

4- Write briefly on the following:

(20marks)

- Discuss Goldschmidt rule for major elements during magmatic crystallization and factors affect the distribution
- Explain the Siderophile elements and their distribution in the earth.
- Distinguish between the composition of meteorites and similarities with different part from the earth
- Compare between the geochemical characteristics of A-type and M-type granites and their tectonic setting.
- Define the magma type based on Al₂O₃ saturation

من فضلك باقى الاسئله خلف الورقة

5-Complete the followings:

(20 marks)

- 1- Geochemical classification of the elements based on,, and classified into,,
- 2- The mantle is mainly formed from elements whereas the crust is mainly formed from elements such as
- 3- Normative composition of S-type granites should include,and..... minerals and these rocks formed intectonic setting due to and have magma type.
- 4- I-type granites characterize by SiO_2 and $\text{Na}_2\text{O} + \text{K}_2\text{O}$ with magma type and characterize by some index minerals such as.....
- 5- Chlorine, fluorine and water in the of crystallization with of complexity and increasing of Substitution.
- 6-magma has Al_2O_3 and low Na_2O , K_2O and CaO , it contains some characteristic minerals such as.....
- 7- Ni and Cr elements occurs in rocks such as, which contains high amount ofelements
- 8- Uranium - thorium mineralization occurs in rocks for example,rocks contain high amount of,,elements.
- 9- The tholeiitic magma characterized by high amount of and low amount ofwhereas Calcalkaline magma contains high amount of and low amounts of
- 10-Volcanic arc granites have a magma type and originated in tectonic setting

6-Put \checkmark or \times marks and correct the wrong ones:-

(10 marks)

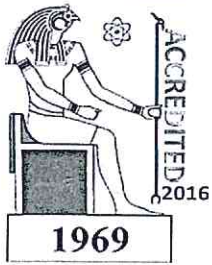
- 1- Rhyolite in QAP diagram of volcanic rock classification characterize by low SiO_2 and $\text{Na}_2\text{O} + \text{K}_2\text{O}$
- 2- The mantle are mainly formed from lithophile elements whereas the crust are mainly formed from chalcophile elements such as Ca and Li
- 3- Oceanic granite is A- type granites, mainly alkali feldspar granites, contains garnet and formed in island arc setting.
- 4- XRF used for analyses of REE in minerals and rocks whereas XRD used for isotope analyses.
- 5- The tholeiitic magma characterized for rocks contains high amount of sodium and potassium and contain high amounts of fluorine.

Examiners:

Prof. Mohamed F Ghoneim

Prof Mohamed M Abu Anbar

Good Luck



Tanta UNIVERSITY
Faculty of Science
Department of geology

EXAMINATION FOR SENIORS STUDENTS
OF
SPECIAL GEOLOGY

COURSE TITLE:

Geology of Ore in Egypt

COURSE CODE: GE4107

DATE: 14/1/2023

January, 2021

TERM: First

TOTAL ASSESSMENT MARKS: 100

TIME ALLOWED: 2 HOURS

Write a brief on of the following questions

1) Different types of (select only FOUR):

(30 marks)

- a) Uranium Deposits in Egypt
- b) Emerald/Beryl occurrences in Egypt
- c) Talc Deposits in Egypt
- d) Placer Gold Deposits in Egypt.
- e) Copper Deposits in Egypt.
- f) Heavy Minerals in Egyptian Black Sand Deposits.

2) Natural Resources in (select only THREE):

(30 marks)

- a) Gabal Igla
- b) Um Bogma District
- c) Golden Triangle Area
- d) Hafafit Area

3) General Characteristics of:

(20 marks)

- a) The Egyptian Banded Iron Formations in the Central Eastern Desert.
- b) Disseminated and vein-type tin mineralization in the Central Eastern Desert.


4) Write only on TWO of the following questions:

(20 marks)

- a) Mineralogical characteristics of primary tantalum occurrences in the Eastern Desert, Egypt.
- b) Stratiform Massive Sulphide (VMS) Deposits.
- c) Different Mode of Egyptian Manganese Ore Deposits
- d) Compared between Iron ore Deposits in the Aswan area and Bahariya Oases.

Prof. Dr. Hassan Z. Harraz

Prof. Dr. Mohamed Abdelmonsef

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION FOR SENIORS STUDENTS OF GEOPHYSICS		
COURSE TITLE:	PETROLEUM GEOLOGY-1		COURSE CODE:GE4109
DATE:	JAN. 2023	SEMESTER:FIRST	TOTAL ASSESSMENT MARKS: 100 TIME ALLOWED: 2 HOURS

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible):

1-Discuss the following subjects: (45 marks)

- a) Total organic carbon.
- b) Interfacial tension (IFT) of petroleum fractions.
- c) Role of catalytic reaction in petroleum formation

2- Complete the followings: (15 marks)


- a) Most petroleum contain and which are found in organic material
- b) The well for test is called
- c) oil has API gravity over 40 degree.
- d) Black color index indicate to Kerogen maturity stage.
- f) H / C ratio of exinite kerogen type almostly equals to

3- Write briefly on the classification of the chemical reservoir rocks. (15 marks)

4- Write account of the followings: (25 marks)

- a) Classification of sandstone reservoir rocks.
- b) Subsurface occurrences of petroleum.
- c) Miscellaneous reservoir rocks.

EXAMINERS	PROF. DR.NADER EL GENDY	DR. SHADIA ABD EL REHIM
-----------	-------------------------	-------------------------

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR THE 4 TH LEVEL GEOLOGY STUDENTS (SPECIAL)			
	COURSE TITLE:	Facies Analysis & Depositional Environments		COURSE CODE:GE 4115
DATE :	JAN.18, 2023	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 H.

Answer the following questions:

- 1- Write short notes on facies concepts (facies models, patterns, types and migration) and how to perform a facies analysis? (20 Marks)
- 2- Explain briefly facies change during marine transgression and marine regression? (20 Marks)
- 3- Write briefly on Walther's law of the correlation of facies. (20 Marks)
- 4- Write shortly on the controls on carbonate sedimentation. (20 Marks)
- 5- Explain with drawings Reef structures and Reef settings. (20 Marks)