

Final Examination of Organic chemistry for 3th year students

All Double Major
Hetero Cyclic

Total 100 marks

1-) Answer by equations the following reactions

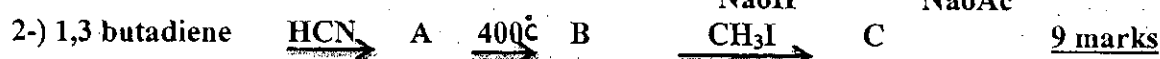
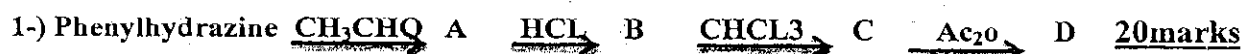
Each item 5 marks

- From phenol how can you prepare benzofuran .
- α - picoline is more acidic than β picoline . Give examples .
- Ring opening of piperidine ring . Show by mechanism .
- Knorr - pyrrole synthesis .
- Pyridine fails to undergo acylation or alkylation (explain)

2-)

Each item 5 marks (a,b,c,e)

- from Glycerol how can you prepare quinoline
- Trimerization of pyrrole
- how can you prepare 3-nitro furan
- write equations and identify the products A,B,C (name all the products)



- show the oxidation and reduction of thiophene . NaOH

3-)

Each item 5 marks(a,b,c,d)


- From o-nitrotoluene how to prepare Indole
- Draw the resonating structure of pyridine-1-oxide
- synthesis of tryptophan
- convert pyridine to 4-nitropyridine
- Arrange the following compounds according to basicity with explanation :

Triethylamine , pyrrole , pyridine and piperidine

6marks

With by best wishes

~~8/10/17~~ . 21

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION For the Third Level of Special Geology Students			
COURSE TITLE	Metamorphic Petrology (2)		COURSE CODE: GE3015	
DATE:	26 /12/ 2017	First Semester	TOTAL ASSESSMENT MARKS :100	TIME ALLOWED: 2 hrs.

Answer the following questions. Illustrate your answer whenever possible.

1. How does the hydrothermal solutions come from and travel to be remarkable factor to metamorphism? (10 marks)

2. Differentiate between thermal metamorphic products and dynamic metamorphic ones. (15 marks)

3. Tick (✓) or (x) for the following statements and correct the false one. (25 marks)

- a. Recrystallization is related to thermal metamorphism.
- b. Impact metamorphism gives rise to non-foliated rocks.
- c. Radioactive decay is mostly main factor of heat source.
- d. Polygonal texture is related to regional metamorphism.
- e. Index of elongation of some minerals in gneissic rocks is more than found in granitic ones.
- f. Ocean-floor metamorphism is pertaining to greenschist facies.
- g. When meteorites slammed into terrestrial rocks, the evidences of shatter cones and other features will be recognized in the most cases.
- h. Slaty-cleavage is considered to be a finger-print of regional metamorphism.

4. Write short notes on the following: (15 marks)

- a. Phase rule of one component system.
- b. Determination of tectonic setting and origin of metamorphic rocks using their bulk rock chemical composition (geochemical data).
- c. Determination of metamorphic facies, pressure and temperature using its mineral chemistry.


5. Discuss the progressive metamorphism of the Al_2O_3 -CaO-SiO₂ (20 marks)

6. What are the difference between ACF, AKF and AFM phase diagrams (15 marks)

Wishing Success for the ALL

Examiners: Prof. Mohamed Th. S. Heikal & Prof. Bothina T. El Dousky

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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR JENOIR (THIRD YEAR) STUDENTS OF CHEMISTRY AND GEOLOGY SECTION			
COURSE TITLE:	Metamorphic Petrology (2)		COURSE CODE: GE3105	
DATE:	26-12-2017	TERM: FRIST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions, illustrating your answers with diagrams if it possible:

1-Write short notes on the following:

- a- Lowr and upper limit of metamorphism------(8 marks)
- b- Diagnostic minerals of very low grade and high grade metamorphism----- (8 marks)
- c- Textures of thermal metamorphiam------(9 marks)
- d- Metamorphic facies of regional metamorphism ------(12 marks)
- f- Classification of metamorphic rocks based on textures------(12 marks)
- g- Subduction zone metamorphism and arc-trench zone metamorphism------(12 marks)

2-Complete the following: -----(15 marks)

- a- Polymorphic reaction (solid-solid reaction).....such as.....
- b- Devolatilization reactions.....such as
- c- Metasomatic exchange reactions issuch as
- d- The component M in AFM diagram is
- e- The component F in ACF diagram is....., while in AFM diagram is.....

3- Show difference between ACFand AKF graphical representation diagrams and give examples for each diagram.------(15 marks)

Best wishes

Examiners:

Prof. Gaafar El Bahariya Dr. Ismail Thabet



TANTA UNIVERSITY,
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

FINAL EXAM FOR LEVEL 3 DOUBLE MAJOR STUDENTS

COURSE

SURFACE CHEMISTRY AND CATALYSIS

CODE: CH 3143

DATE

DEC 31, 2017

TERM: FIRST

TOTAL ASSESSMENT MARKS: 50

TIME ALLOWED: 2 H

Please answer these questions


Question (1): Choose the correct answer of the followings (10 marks, 1 for each)

- Which of the following best describes the movement of pollen grains in water?
a) diffusion b) photosynthesis c) Brownian motion d) distillation
- As the concentration of surfactant increases to the critical micelle concentration, the molecules are collected into a structure called:
a) ball b) sphere of ions c) micelles d) dirt particle
- Physical adsorption is directly proportional to the
a) pressure b) temperature c) volume d) concentration
- Foam is a colloidal system in which gas bubbles are dispersed in
a) gas b) liquid c) solid d) none of these
- The dispersion medium for the formation of fog is a liquid
a) True b) False
- Which of the following statement is correct regarding chemical adsorption?
a) it is fast c) it is reversible
b) it forms multimolecular layers d) it has high heat of adsorption
- The use of membranes for separating impurities from colloidal suspension is
a) sedimentation b) ultrasonic c) dialysis d) successive cooling
- Among the Langmuir assumptions is an interaction between the adsorbed molecules on the surface
a) True b) False c) none of these
- Aggregation methods for preparation of colloids involve
a) Ultrasonic waves b) solvent exchange c) mechanical dispersion d) Bredig's arc method
- Adsorption is the a phenomenon in which a substance
a) remains close to other substance c) goes into the body of other substance
b) accumulate on the surface of other substance d) none of these

Question (2) Mark (✓) or (X) as appropriate (10 marks, 1 for each)

- The sedimentation rate is affected by medium viscosity.
- The BET adsorption equation includes the parameters P^0 and ΔH_L .
- V_m is the volume of gas required for the surface to be fully occupied .
- The CMC of surfactant solution is directly proportional to the chain length .
- The surface coverage (Θ) of a solid catalyst is equal to $(1+KP) / KP$.
- The rod-like micelle is formed below the CMC.
- The molar conductivity of surfactant solution increases with the concentration up to CMC.
- The mean displacement of colloidal particles is inversely proportional to the diffusion coefficient.
- The intercept of the relationship $1/V$ vs $1/P$ of Langmuir isotherm is $1/bV_m$
- The tendency for particles to migrate from a region of high concentration to a region of low concentration is controlled by the translation diffusion rate.

باقى الاسئلة فى الخلف

	Tanta University - Faculty of Science Department of Chemistry		
	Final Examination for 3rd level students in Transition Elements Code No.: CH 3147 Major: for all sections Term: 1st term 2017/2018 Date: Tuesday, 2/1/2018 Period: 10-12 AM Time allowed: 2 hrs. Total assessment: 50 marks		

I. Complete the following sentences (15 marks)

- 1- IUPAC organization defined transition elements as those elements that.....
- 2- The size of the d-block elements in a series decreases with increasing the atomic number (from left to right) because of
- 3- The atomic volume of Sc group (group IIIB) increases significantly in a regular manner from top to down because of..... but, in Ti group, the volume increases significantly from Ti to Zr, then slightly increases from Zr to Hf because of the lanthanide contraction which is defined as.....
- 4- Oxidation number is defined as For examples the ox. no.'s of the underlined elements in $\underline{\text{Os}}\text{O}_4$, $\underline{\text{Mn}}\text{O}_4^-$ are..... and, respectively. In the first series of transition elements, the maximum oxidation number from Sc to Mn is equal to the sum of electrons of, but after Mn this number abruptly decreases because of
- 6- The colors of the transition metal compounds may arise from:
(1).....(2).....(3)..... (give examples)



II. Write down on Two Only of the following: (9 marks)

- a) Zeigler-Natta catalyst for polymerization of ethylene.
- a) Kroll's method for extraction of titanium and its uses.
- c) Four properties of the lanthanides.

III. Answer the following:(16 marks)

- A) In terms of CFT, draw the energy level diagrams of the following ions: a) $\text{Fe}^{3+}(\text{d}^5)$ in strong and weak octahedral ligand fields. b) $\text{Ni}^{2+}(\text{d}^8)$ in tetrahedral and square-planar ligand field.

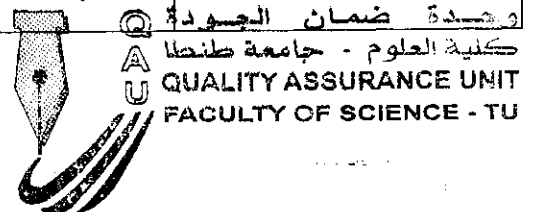
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	FINAL EXAMINATION FOR THIRD LEVEL (ALL SECTIONS)		
COURSE TITLE:	SEDIMENTARY PETROLOGY	COURSE CODE:	GE 3107
JANUARY, 2018	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED:	2 HOURS

ANSWER THE FOLLOWING QUESTIONS (Illustrate with drawings):

- 1- Define porosity and permeability of rocks, and mention their types and the different factors affecting them. (20 degree)
- 2- During transportation, sedimentary particles are variously affected in shape, surface features, sizes, sorting, roundness and sphericity – comment briefly. (20 degree)
- 3- Write on the different types of weathering processes. (15 degree)
- 4- Write shortly on the following: (15 degree)
 - a. Turbidity currents
 - b. Gravitational transporting processes
 - c. Characteristics of laterite & bauxite soils
- 5- Write shortly on the most common "Post Depositional Primary Sedimentary Structures". (15 degree)
- 6- Explain briefly the "Types of Deserts" and the most common features of "Erosion and Deposition in the Deserts". (15 degree)

EXAMINERS	Prof. A.T. Abdel-Hameed	Prof. A. El-Shishtawy	Dr. G. Mosa
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Course Title:	Physical Organic Chemistry	Course Code: CH3151
Jan. 2018	Term: First	Total Marks: 50 Marks
		Time allowed: 2 Hours

Answer the following questions :

1) On the bases of Hammett correlation, illustrate by mechanistic equations the following:

- a- The reaction pathway of m- and p- substituted benzaldehydes with semicarbazide at different ρ s in ethanol and 25°C. (4 marks)
- b- Acetolysis of 3-aryl-2-butyl brosylate. (4 marks)
- c- The (LFER)_s break down (deviate from correlation) in part of some reactions of p- substituted derivatives. (Two examples) (4 marks)
- d- The hydrolysis of m- and p- substituted benzoyl chlorides. (4 marks)

2) All the following statements are false, please illustrate the correct answer:

- a- The rate of S_N1 hydrolysis of p- methoxy phenyl dimethyl carbonyl chloride is less than unity. (3 marks)
- b- The acetolysis of exo - norbornyl brosylate by N.G.P. gives racemic mixture through classical carbocation intermediate. (3 marks)
- c- In The N.G.P. by both sulphur and nitrogen, the isolated product is secondary alcohol in hydrolysis reactions. (3 marks)
- d- The reaction of m- and p- substituted styrene with Br_2 in CCL_4 is S_N1 and ρ (+ve & -ve) values. (3 marks)

3) a- Write a brief summary on Hammett equation. (5 marks)

- b- Calculate the rate of saponification of both m-methyl ethylbenzoate and m-methoxy ethylbenzoate (Given that $\rho=2.54$, $\sigma_{m\text{-methyl}} = -0.069$ and $\sigma_{m\text{-methoxy}} = 0.12$), then Comment on your answer. (5 marks)

Please Turn Ove



Tanta University - Faculty of Science - Chemistry Department

Final Exam in "Instrumental 2"

For **Third level** students (**Biochemistry + All Double Sections**)

Course Code: **CH 3149** – Total assessment marks: **100**

Date: **15/1/2018** – Time Allowed: **2h**

Question (1): (20 mark)

Compare between the following:

- A) Column diameters, stationary phase and moving phase in GC and HPLC.
- B) TLC and HPLC chromatography.
- C) Radial and ascending development techniques.
- D) Normal and Reverse phases chromatography.

Question (2): (20 mark)

Explain the following:

- A) Applications of ion exchange and gel chromatography in brief.
- B) Using of GC in identification and quantitative of components.

Question (3): (20 mark)

Write on (two only) the following:

- A) Draw schematic diagram with liable its parts of HPLC, then state the advantages and disadvantages of HPLC.
- B) Define "Selectivity factor", of ion exchange resins and explain the factors affecting on it.

Question (4): Chose the correct answer: (2 marks for each)

1) The basis of chromatography for separating components of a mixture is ..

- A) The differing movement of particles of different mass in an electric field.
- B) The interaction of the components with both stationary and mobile phases.
- C) The absorption of infrared radiation by the components.
- D) The deflection of charged particles in a magnetic field.

- B. will spend more time dissolved in the mobile phase than attached to the stationary phase.
- C. must have a high molecular mass.
- D. will move at a speed close to that of the solvent

10) What does the selectivity factor describe?

- A. The proportional difference in widths of two chromatographic peaks.
- B. The maximum number of different species which a column can separate simultaneously.
- C. The relative separation achieved between two species.
- D. None of the above.

11) Which is most correct, ion exchange is used to analyse:

- A. Inorganic ions.
- B. Organic ions.
- C. Metal ions.
- D. Most molecules that form ions.
- E. Cells and proteins and aminoacids.

12) Which of the following is not true about HPLC?

- A) There is no need to vaporize the samples,
- B) It requires high pressure for the separation of the species,
- C) It has high sensitivity
- D) It is performed in columns

13) A new youth drink contains sugar, salt, alcohol and vitamin C. A gas chromatogram could be used to determine the ...

- A. alcohol and sugar content only.
- B. alcohol content only.
- C. alcohol, sugar and vitamin C content only.
- D. concentration of all ingredients in the drink.

14) An eluotropic series

- A. Ranks column packing material by their relative abilities to retain solutes on the column,
- B. Is a measure of the solvent adsorption energy,
- C. Ranks solvents by their relative abilities to displace solutes from a given adsorbent,
- D. none of the above

15) HPLC methods include:

- A. liquid/liquid (partition) chromatography,
- C. ion exchange and size exclusion chromatography,
- B. liquid/solid (adsorption) chromatography,
- D. all of the above.



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Tanta University - Faculty of Science - Chemistry Department

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TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR JUNIORS (THIRD LEVEL) STUDENTS (CHEMISTRY/GEOLOGY SECTION)

COURSE TITLE:

Field Geology & Field Studies

COURSE GE 3111

DATE:

JAN. 17, 2017

TERM: FIRST

TOTAL ASSESSMENT MARKS

100

TIME ALLOWED: 2 HOURS

Answer the following questions; illustrate your answer whenever possible

1-Write briefly on the three major stages in carrying out a mapping project? **(20 marks)**

2- Write with drawing, whenever possible, on the following:- **(30 marks)**
a- Geological report.
b- Measuring stratigraphic section in the field.
c- Types of aerial photographs.

3- Write on the following: (50 marks)

- 1-Pegmatite.
- 2-Hydrothermal veins.
- 3-Recording the lithology of the siliciclastic rocks in the field.
- 4-Xenolithes.
- 5- Description of igneous outcrops in the field.
- 6-Boudins.

Good Luck!

Examiners	Prof. Mohamed Atef Noweir
	Prof. Mohamed Abdelwahed

Prof. Mohamed El-Sayed
Dr. Ahmed El-Said



Q وحدة ضمان الجودة
A جامعة طنطا - كلية العلوم
U QUALITY ASSURANCE UNIT
FACULTY OF SCIENCE - TU

