

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR SOPHOMORES STUDENTS
OF
SPECIAL GEOLOGY AND CHEMICAL-GEOLOGY

COURSE TITLE:	APPLIED MINERALOGY	COURSE CODE: GE2214
DATE: 28/12/ 2020	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions

1) Write brief on the following: (30 marks)

- a) Mineral used as Filler and Reason For using Mineral Fillers
- b) Integrated Production Model with Value Added Product Sales
- c) Petrological Assemblages of Talc
- d) Feldspar in Glass Manufacture
- e) Processing of Vermiculite Expansion (or Exfoliating)

2) Different types of: (30 marks)

- a) Natural Earth Pigments
- b) Fluorite Grades
- c) Gravity Concentration Processes
- d) Dewatering Techniques.

3) Draw Flow chart to obtain Zirconium Sponge from zircon. (15 marks)

4) What is (10 marks)

- a) Calcination process
- b) Metspar
- c) Drying process
- d) Soapstone

5) Compare between: (15 marks)

- a) Natural Abrasive Minerals or Synthetic Abrasive Minerals.
 - b) Serpentine asbestos and Amphibole asbestos
-



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR SECOND YEAR STUDENTS OF SPECIAL GEOLOGY

COURSE TITLE:	MICROPALAEONTOLOGY (2)	COURSE CODE: GE2210		
DATE:	29 DEC, 2020	TERM: SECOND	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

I) Answer the following questions: illustrating your answer with clear drawing:

- 1) Explain the types of hinge structure in Ostracoda carapace? (25 Marks)
- 2) Explain the main morphological characters of Diatom frustule with examples? (25 Marks)
- 3) Explain the Central area structure of calcareous nannofossils with examples? (9 Marks)
- 4) Explain the Nannolith shapes with examples (9 Marks)


II) Choose the correct answer of the following questions:

(32 Marks)

1. The wall of calcareous algae is
a) Siliceous b) phosphatic c) chitinous d) organic
2. The earliest freshwater diatoms appear in
a) Cretaceous b) Paleocene c) Eocene d) Miocene
3. The earliest raphid pennate diatoms appear in
a) Cretaceous b) Paleocene c) Middle Eocene d) Middle Miocene
4. Marine ostracods carapace tend to be:
a) Heavily calcified, b) weakly silicified c) weakly calcified d) moderately silicified
5. The earliest recorded well preserved diatoms are
a) Biraphide pennaes b) centric forms c) Monoraphide pennaes
6. Merodont hinge is characterized by having
a) No terminal teeth b) terminal teeth in one valve only c) terminal teeth in both valves
7. The wall composition of diatom frustules
a) Calcareous b) phosphatic c) Siliceous d) organic
8. Calcareous nannofossils are generally excellent indicators of
a) Tectonics b) biostratigraphy c) paleoecology d) Age dating


Good Luck

Examiners	Prof. Abdelfattah Ali Zalat
	Prof. Mahmoud Faris Mohamed

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SECOND LEVEL STUDENTS OF SPECIAL GEOLOGY			
	COURSE TITLE:	Final Exam of Gemstones		COURSE CODE:GE2111
DATE:	2021	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions:

- 1-Composition, classifications and geological record of amber.
 - 2-The main varieties of cryptocrystalline silica gemstones .
 - 3-Treatments and formation of turquoise.
 - 4-Treatment ,cutting and polishing of gemstones.
 - 5-Physical properties and Origin of diamond.
 - 6- Gem varieties of beryl and tourmaline.
 - 7-Physical properties of chrysolite,lapis lazuli and enhancement of jade
- 8-Complete the following sentences:
- a-Hard jet is the result of-----whereas the soft jet is the result of-----
 - b-Metamictization zircon is characterized by-----
 - c-Varieties of the aluminium spinels include-----
 - d-Momme weight of pearl is equal-----
 - e-The four Cs includes-----
 - f-Gem varieties of corundum are-----
 - g-Gem varieties of plagioclase feldspars are-----

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR (LEVEL 2) SPECIAL GEOLOGY, GEOLOGY/ CHEMISTRY AND GEOPHYSICS			
	COURSE TITLE:	Principles of Stratigraphy		CODE: GE 2107
	DATE:	27 FEB. 2021	SEMESTER: 1	TOTAL MARKS:100

Answer the following questions

Question 1:

(25 Marks)

Discuss and illustrate by drawing:

- A- Acquisition of seismic reflection data.
- B- Gama ray log and Sonic log

Question 2:

(25 Marks)

A- State, explain and draw the Law of Faunal Succession and the Principle of original horizontality.

B- Magnetostratigraphy as a branch of Stratigraphy

Question 3:

(25 Marks)

Illustrate by Drawing only

- a- Nonconformity
- b- Reflector patterns and reflector relationships on seismic reflection profiles
- c- Fining Upwards Sequence (FUS).

Question 4:


(25 Marks)

Discuss briefly:

- a- Three only of the outcrop stratigraphic procedures.
- b- The Relative age and give example (Maastrichtian Age)

Best wishes

Examiners	Prof. Dr. Hamza Khalil	Dr. M. Sobhy
------------------	-------------------------------	---------------------

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR (LEVEL 2) SPECIAL GEOLOGY, GEOLOGY/ CHEMISTRY AND GEOPHYSICS			
1999	COURSE TITLE:	Principles of Stratigraphy		CODE: GE 2107
DATE:	27 FEB. 2021	SEMESTER: 1	TOTAL MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions

Question 1:

(25 Marks)

Discuss and illustrate by drawing:

- A- Acquisition of seismic reflection data.
- B- Gama ray log and Sonic log

Question 2:

(25 Marks)

A- State, explain and draw the Law of Faunal Succession and the Principle of original horizontality.

B- Magnetostratigraphy as a branch of Stratigraphy

Question 3:

(25 Marks)

Illustrate by Drawing only

- a- Nonconformity
- b- Reflector patterns and reflector relationships on seismic reflection profiles
- c- Fining Upwards Sequence (FUS).

Question 4:


(25 Marks)

Discuss briefly:

- a- Three only of the outcrop stratigraphic procedures.
- b- The Relative age and give example (Maastrichtian Age)

Best wishes

Examiners	Prof. Dr. Hamza Khalil	Dr. M. Sobhy
------------------	-------------------------------	---------------------

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR (LEVEL 2) SPECIAL GEOLOGY, GEOLOGY/ CHEMISTRY AND GEOPHYSICS			
	COURSE TITLE:	Principles of Stratigraphy		CODE: GE 2107
DATE:	27 FEB. 2021	SEMESTER: 1	TOTAL MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions

Question 1: **(25 Marks)**

Discuss and illustrate by drawing:

- A- Acquisition of seismic reflection data.
- B- Gama ray log and Sonic log

Question 2: **(25 Marks)**

A- State, explain and draw the Law of Faunal Succession and the Principle of original horizontality.

B- Magnetostratigraphy as a branch of Stratigraphy

Question 3: **(25 Marks)**

Illustrate by Drawing only

- a- Nonconformity
- b- Reflector patterns and reflector relationships on seismic reflection profiles
- c- Fining Upwards Sequence (FUS).


Question 4: **(25 Marks)**

Discuss briefly:

- a- Three only of the outcrop stratigraphic procedures.
- b- The Relative age and give example (Maastrichtian Age)

Best wishes

Examiners	Prof. Dr. Hamza Khalil	Dr. M. Sobhy
------------------	-------------------------------	---------------------

Tanta University		Examination for sophomores (Second Year) Student of Geology	
Faculty of Science		Crystallography	COURSE CODE: GE 2101
Geology Department		First Semester Jan 20-21(100 Marks)	TIME ALLOWED: 2 HRS

Answer the following questions illustrating your answer with drawing if it possible: - (50 marks)

- 1- Classify the different crystallographic systems according to crystallographic axes and axial angles.
- 2- Discriminate between the different types of pinacoid's and domes of orthorhombic system.
- 3- Write on the elements of crystallization.

- 4- Define the following: - (20 marks)
 - a) Prism and bipyramid.
 - b) Dome and pinacoid.
 - c) Elements of symmetry of Tetragonal and Orthorhombic systems.
 - d) Characteristic features of orthorhombic system.
 - e) Example of minerals crystallized in cubic system

- 5- What are the differences between the following? (20 marks)
 - a) Ortho-pinacoid and clino-pinacoid.
 - b) Law of symmetry of Hexagonal system and Trigonal system
 - c) The different types of pinacoids and domes of Monoclinic system.
 - d) Rhombohedron and rhombic dodecahedron.
 - e) Triclinic prismatic and pinacoidal forms.

- 6- Plot the different, parameters on the stereographic projection: - (10 marks)
 - a) (111)
 - b) (110)
 - c) (100)



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF CHEMISTRY/GEOLOGY

1989	COURSE TITLE:	CRYSTALLOGRAPHY		COURSE CODE: GE2101
DATE:	MARCH, 2021	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Supply your answers with drawings as much as possible

Question One (50 Marks)

Explain the following:

- 1) The principle of parsimony of crystal structure.
- 2) Limiting R_x/R_a for octahedron coordination lies between 0.732-0.414.
- 3) Carbonate group minerals has anisodesmic structure.
- 4) Diamond is bad conductor of electricity
- 5) CsCl has cube coordination.
- 6) Absent of side central unite cell in cubic system.
- 7) Coordination number depends on cation-anion ratios.
- 8) Physical properties of a mineral depend on type of mineral structure.
- 9) Significant of Electrostatic valancecy strength (e.v).
- 10) Cubic closest packing and Hexagonal Closest Packing

Question Two (25 Marks)

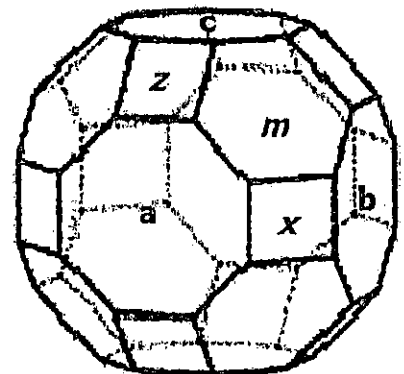
Answer by Yes or No, giving reasons for your answers and correcting the wrong sentences

- 1) In crystals having only a center of symmetry the minimum number of faces in any form is 2.
- 2) The classification of crystals into systems depends on their elements of symmetry.
- 3) In crystals having only a tetrad axis of symmetry the maximum number of faces in any form is 4.
- 4) Interfacial angle may be different among crystals of the same mineral
- 5) Crystals have the same symmetry belongs to the same system
- 6) Volume of crystals of magnesite mineral is constant.
- 7) Solid angles are the same for crystals of the same mineral.
- 8) Tetragonal prism of may be found in simple crystals.
- 9) Crystals have symmetry formula of $[4/m 2^2]$ have 4 crystallographic axes a_1, a_2, a_3, a_4 .
- 10) The crystals are divided into 23 systems and 7 classes.

Question Three (15 Marks)

Using the drawn projection,

- 1- Count the forms composing the crystal
- 2- Does the crystal contain a triad axes of symmetry? If yes, detect their poles
- 3- Detect the parameters of faces z, m and x
- 4- Plot the stereographic projection showing the elements of symmetry and crystallographic elements.

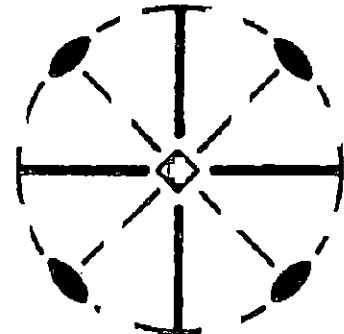


Question Four (10 Marks)


Crystals having the following stereographic projection:

Detect the symmetry law of the crystals have this projection.

Plot planes of symmetry which are perpendicular to all axes of symmetry



EXAMINERS	PROF. MOHAMED F. GHONEIM	PROF. MOHAMED M. HAMDY
-----------	--------------------------	------------------------

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	Final Exam For the Second Level of Chemistry-Geology Students		
COURSE TITLE	Optical Mineralogy		COURSE CODE: GE2105
DATE:	20/1/ 2021	First Semester	TOTAL ASSESSMENT MARKS :100 TIME ALLOWED: 2 hrs.

Answer the following questions: → Electronic Exam (50 marks)
Part I

1. Mark (T) or (F) of the following phrases: (30 marks)

- 1-1. Sometimes, optic axis and c-axis coincide with each other.
- 1-2. The parallel sections of the anisotropic minerals give rise to the lowest optical properties.
- 1-3. Extinction position is relevant to the vibration direction of the polarizer and analyzer.
- 1-4. Some isotropic minerals have twinkling.
- 1-5. Michel Levy Chart is used to determine the order of interference color.
- 1-6. Anomalous interference colors is most common in feldspar minerals.
- 1-7. Twinning is most common optical feature in feldspar minerals.
- 1-8. When retardation increase, the ordering of interference color decrease.
- 1-9. When the retardation equals zero, the minerals said to be isotropic.
- 1-10. When the length SLOW of the mineral parallel to length FAST of gypsum plate, the mineral said to be negative.
- 1-11. When the length FAST of gypsum plate parallel to the length FAST of the mineral, it said to be negative.
- 1-12. Quartz wedge is mostly used to determine sign of elongation. .
- 1-13. Gypsum plate is used to determine the optic sign of low birefringent minerals.
- 1-14. When the minerals has grey first order, you must use quartz wedge.
- 1-15. When the mineral has two sets of cleavage, you must measure the cleavage angle.

2. Read carefully the following phrases and choose the correct answer between the brackets (A-D).

(20 marks)

- 2-1. To adjust polarizing microscope you must do:
(A) lighting and centering (B) Crossing (C) Testing the cross hairs (D) All
- 2-2. The suitable thickness of thin section to be studied under polarized microscope is:
(A) 0.5mm (B) 33 μm (C) 30 μm (D) 0.2 mm
- 2-3. The main components of polarizing microscope are:
(A) Polarizer (B) Analyzer (C) Bertrand lens (D) All
- 2-4. Twinning is best seen between:

↓
ندید در تمام نه از گفت

(A) Convergent light (B) XPL (C) Polarized light (D) Ordinary light

2-5. BXa of a mineral is produced from thin section:

(A) Normal to optic axes (B) Normal to acute bisectrix optic axes (C) Parallel to optic axes (D) All

2-6. 2V angle is produced in:

(A) BXa and BXo (B) Uniaxial interference figures (C) Optic axis figure (D) All

2-7. Symmetrical extinction angle occurs in

(A) some uniaxial minerals (B) Isotropic minerals (C) Biaxial minerals (D) All

2-8. Pleochrism is well noted in:

(A) colorless minerals (B) anisotropic colored minerals (C) Isotropic minerals (D) All

2-9. Pleochroic halos is indicated by:

(A) Radioactive decay of some minerals (B) Inclusions (C) Alteration (D) All

2-10. Refractive index plays an important role to produce optical properties such as:

(A) color (B) Relief (C) Twinkling (D) Both B + C

Part II: Written Exam (50 marks)

Answer the following questions → Written Exam

1. Explain WHY and/or HOW? (25 marks)

a. All isotropic minerals have no pleochrism.

b. Retardation value plays an important role in ordering of interference color for all minerals.

c. Isotropic minerals have one refractive index.


d. Biaxial minerals have two optic axes.

e. Few anisotropic minerals have twinkling.

2. Discriminate between uniaxial interference figures and biaxial interference figures on the respect of their types and mechanism in steady and dynamic states. Illustrate your answer. (25 marks)

Wishing Success for the ALL

Examiner: Prof. Mohamed Th. S. Heikal

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SOPHOMORES(LEVEL TWO) STUDENTS (SPECIAL GEOLOGY)			
	COURSE TITLE	OPTICAL MINEROLOGY		COURSE CODE:GE2105
DATE:	13 / 3 / 2021	SEMESTER FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED:2 HOURS

Answer the following questions ;illustrate your answers with diagrams wherever is possible :

1-Compare between the isotropic and anisotropic minerals in the light of their pleochroism and explain how the light pass through them between crossed Nicols..... (20 marks)

2-Comment on the following phenomenas :

a-Pleochroism in the anisotropic minerals.....(10 marks)

b- Twinkling in the uniaxial minerals..... (10 marks)

3-By using the polarizing microscope , explain how to determine :

a-The vibration planes of the polarizer and analyzer..... (10 marks)

b-The optic sign of the biaxial minerals (10 marks)

c-The order of the interference colour in the thin sections..... (10 marks)

4-Write short notes on the followings :

a-Extinction and extinction angles.....(10 marks)

b-Cleavage.....(10 marks)

c-Types of interference figures of the uniaxial minerals.....(10 marks)

Examiner : Prof .Abdelsalam M.R. Abouelela

Examiner :Prof. Samir M. Aly





TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR SECOND YEAR STUDENTS OF GEOPHYSICS

COURSE TITLE

OPTICAL MINERALOGY

COURSE CODE: GE 2105

DATE:

Febraury 2021

TERM: FIRST

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 -Two methods of light-polarization------(13 marks)
- b- Mechanism of interference between crossed nicols------(13 marks)
- c- Interference figures of uniaxial minerals------(13 marks)
- d- Orders of interference colours in anisotropic mnerals------(13 marks)

2-Discriminate between the following:

- a- Uniaxial and biaxial anisotropic minerals------(13 marks)
- b- Twinkling and pleochroism------(13marks)
- d- Extinction and twinning in anisotropic minerals------(13 marks)


3- Define the following:

Birefringence, retardation and optic axis -----(9 marks)

Best wishes

Examiner:

Prof. Gaafar A El Bahariya

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR 2 nd LEVEL STUDENTS OF SPECIAL GEOLOGY			
	COURSE TITLE:	STRUCTURAL MINERALOGY		COURSE CODE: GE 2103
DATE:	20 Mar. 2021	TERM: FIRST SEMESTER	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HRS

Write briefly on the followings, illustrate your answer with diagrams whenever possible:

- 1- Structure of diamond
- 2- Exsolution
- 3- Structure of aragonite
- 4- Unit cell of cubic system
- 5- Structure of tectosilicates
- 6- Types of pseudomorphism
- 7- Structure of graphite
- 8- Polymorphism of TiO_2 , SiO_2 .
- 9- Sulphur structure
- 10- The difference between:
 - a- Monomict structure and polymict structure
 - b- Heterodesmic and Homodesmic

Examiners	Prof. Samir M. Aly	Prof. Mohamed F. Ghoneim	Prof. Abdelsalam M. Abuelela	Prof. Gaafar A. El Bahariya
-----------	--------------------	--------------------------	------------------------------	-----------------------------