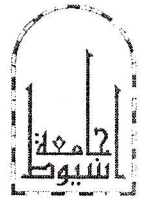


- B- the recognition of pre-Cambrian climates
 C- the correlation of contemporaneous rocks
 D- the establishment of the Archean paleoecology
- 33- The Era in the geological time scale is the longest in the Phanerozoic Eon.
 A- Cenozoic B- Paleozoic C- Mesozoic D- Precambrian
- 34- Fossils are normally preserved in rocks.
 A- sedimentary B- volcanic C- plutonic D- metamorphic
- 35- Major fossils turnover is termed
 A- degradation B- disappearance
 C- mass extinction D- flooding
- 36- The sedimentation history of the fossil is called
 A- biostratigraphy B- diagenesis C- fossil decay D- ontogeny
- 37- Selective preservation of marine dinoflagellates in modern seas result from
 A- increasing surface temperatures B- increasing bottom oxygen concentration
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- 38- Paleoecology is the study of the interactions of organisms with one another and with the physical environment in the, for example,
 A- present times B- Cretaceous Period C- Proterozoic D- Archean
- 39- Sufficient ecologic information regarding living organisms is necessary for studying
 A- dendrology B- lithostratigraphy C- biostratigraphy D- paleoecology
- 40- Which of the following belongs systematically to the calcareous algae?
 A- stromatolites B- dinoflagellates C- silicoflagellates D- spores
- 41- After burial the organic matter is recycled to keep the carbon cycle
 A- terminating B- operating C- closing D- distorted
- 42- Plants contribute to the fossil record because they are
 A- abundant and diverse B- resistant to degradation
 C- of local occurrence D- not geographically widespread
- 43- Plant remains that are buried in a given forest-floor litter may be
 A- degraded B- preserved
 C- removed away D- A and B
- 44- Evolutionary changes in living organisms are
 A- reversible B- rare C- nonreversible D- impossible
- 45- The "Taxon Range Zone" must be named temporarily as
 A- florizone B- acme zone C- teil zone D- opple zone
- 46- The is not a barrier to fossil dispersal.
 A- temperature B- geography C- plate movements D- paleomagnetism
- 47- *Acropora palmata* live in restricted to very shallow turbulent water in environments.
 A- continental B- restricted marine
 C- modern reef D- fluvial
- 48- One of the following is not a Paleozoic Period:
 A- the Ordovician B- Triassic C- the Silurian D- Devonian
- 49- The paleoecologist examine past ecosystems and examine
 A- paleoenvironments B- living organisms
 C- B and D D- ecosystem gradients
- 50- Widespread taxa on a geographic scale are often resistant to degradation and extinction, therefore they are considered fossils.
 A- index B- long-ranging C- absent D- short-ranging

إنتهت الأسئلة مع أطيب الأمنيات بالتوفيق

Examiner: Prof. Dr. Magdy S. Mahmoud (Geology Department)



الامتحان التحريري النهائي لطلاب المستوى الرابع بكلية العلوم (شعبة الجيولوجيا)

المقرر: بيئة الأحياء القديمة وطباقية حياتية (١٤٤ ج)

Palaeoecology & Biostratigraphy 414G

دور يونيو - العام الجامعي ٢٠٢٣-٢٠٢٤م

الدرجة الكلية للامتحان: ٥٠ درجة

الزمن: ساعتان

Q1: Shade (T) for true statements or (F) for false statements (30 marks; 1 mark each)

- 1- The study of the interaction of organisms with one another and with the physical environment in ancient environments is called "ecology".
- 2- The "Abundance Zone" defines a zone of successive phylogenetically-related taxa.
- 3- The erosional surfaces between rocks are considered unconformities.
- 4- Organisms that lived together in a particular environment are called "Thanatocoenosis".
- 5- Time-keepers include rhythmic sedimentary clocks.
- 6- Continental plants are good depth indicators in the marine environment.
- 7- In most organisms the destruction after death and during transportation can be total.
- 8- Stratigraphy is an alternative synonymous term of biostratinomy.
- 9- Microfossils can be applied alone in paleoecology reconstruction.
- 10- All the transported organisms destruct during the biostratinomic stage.
- 11- "Analogy" is an operational base intermediate between substantive and methodologic uniformitarianism.
- 12- Trace fossils contribute significantly to paleoecology.
- 13- Different stages of fossil formation from the death of the living organisms until their final burial and preservation are named "taphonomic processes".
- 14- Data concerning past organisms are used to reconstruct ancient environments.
- 15- Fossil remains imply that they passed through post-mortem stages.
- 16- The actual number of species inhabiting the Earth today is well known.
- 17- Biostratigraphy means classification of rocks on the basis of their fossil content.
- 18- Placing rocks and events in local order and correlating them is called biostratigraphy.
- 19- Benthonic organisms contribute significantly to upper water gradients.
- 20- The "Concurrent Range Zone" is determined by the occurrence of one taxon.
- 21- Species can be preserved in various modes due to environmental reasons.
- 22- Many plant microfossils are good environmental indicators.
- 23- Last appearance datum means the time of origin of a given species.
- 24- The Paleozoic faunas are dominated by fossils plants.
- 25- Natural climatic barriers are considered as biogeographic provinces.
- 26- Temperature is one of the most important variables controlling distributions of most organisms.
- 27- Dinoflagellates are considered indicators of marine paleosalinities.
- 28- All animals which move in water or air are streamlined.
- 29- The term "ecosystem" refers to living organisms and their controlling environmental variables.
- 30- The appearance and disappearance of taxa define biozones.

Q2: Shade the correct answer; A, B, C or D (20 marks; 1 mark each)

- 31- Dinoflagellate cysts are good paleoenvironmental indicators because they are
A- of slow evolution rates B- diverse enough C- abundant D- of low diversity
- 32- The study of fossil successions allows
A- the determination of absolute ages of fossil-bearing strata

- B- the recognition of pre-Cambrian climates
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- 33- The Era in the geological time scale is the longest in the Phanerozoic Eon.
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إنتهت الأسئلة مع أطيب الأمنيات بالتوفيق

Examiner: Prof. Dr. Magdy S. Mahmoud (Geology Department)

Assiut University Faculty of Science Geology Department		جامعة أسيوط كلية العلوم قسم الجيولوجيا
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**Final Exam. In Radiometric & Geothermal Course (G452)
for Fourth year Students (Geophysics Group)**

May, 2024

(50 marks)

Time: 2hours

1. Define the following :

(8 marks)

Half-life - Radiation - Heat flow - Thermal diffusivity - Roentgen – Gamma ray –
Isotopes – Thermal conductivity.

2. Complete SIX ONLY of the Following :

(10 marks)

1. The heat escaping from the earth during
2. The Continental crust is and has higher
3. The transfer of heat in upper mantle due to
4. The Oceanic crust isand has lower
5. The temperature increases with depth.....
6. Rubidium has two half- life times ,
7. Thermal conductivity controlled by ,

3. Write on THREE ONLY of the following :

(24 marks)

1. Causes of Local Variation in Temperature
2. Equality of Continental and Oceanic heat flow
3. Rubidium – Strontium method
4. Geologic Events dated by Radiometric method

4. Complete SIX ONLY of the following :

(8 marks)

1. C14 has half life of about years
2. Alpha particle is
3. Argon produced by the decay of
4. Radiation is energy in the form of travel from
5. Potassium is a common
6. Beta particle is
7. Tritium has half life of aboutyears

===== **Good Luck** =====

Dr. Mohamed Fekry Khalil

بسم الله الرحمن الرحيم

جامعة أسيوط

كلية العلوم

قسم الجيولوجيا

Assiut University

Faculty of science

Geology Department

إمتحان المستوى الرابع (شعبتي الجيولوجيا والجيوفيزياء)

مقرر 415 ج (جيولوجية مصر)

Course 415 G (Geology of Egypt)

الزمن ثلاث ساعات

الدرجة: 50 درجة

دور يونيو 2024

الإمتحان مكون من خمس صفحات

Part I (PreCambrian) 10 Markes

Question 1: Answer the following question (10 Marks).

1-A) Mention the main types of metamorphism occurring in the Egyptian basement. (5 Marks)

1-B) Compare between the Hammamat sediments and the foreland sediments which exposed to the south of Aswan city. (5 Marks)

Part II (Phanerozoic) (30 Marks)

Answer Three Questions of the following:

Question 2: (10 Marks)

2- Compare and correlate in a time table the Oligocene-Miocene rock units in the Northern Western Desert, the Nile Delta and the Gulf of Suez. (10 Marks)

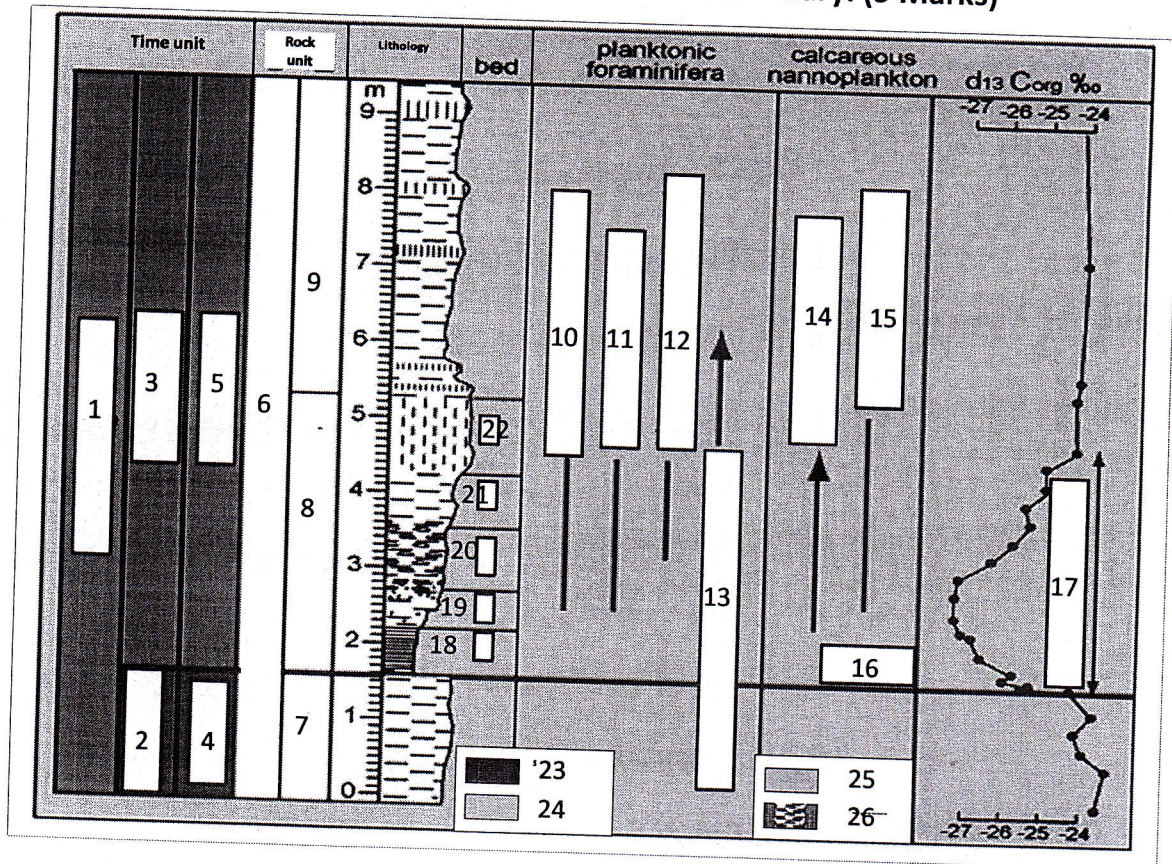
Question 3 (A & B): (10 Marks)

3A- Compare and correlate the Middle –Upper Eocene rock units and their equivalent time units in Fayoum and Cairo. (5 Marks)

3B- Compare and correlate in a time table the Carboniferous rock units along both sides of the Gulf of Suez. (5 Marks)

Question 4 (A-B) (10 Marks)

4-A: If you know in the following table that No. 2 is the Paleocene Epoch and No. 3 is the Eocene Epoch in the GSSP of the P/E boundary, please identify the type locality of this boundary, and fill the remaining white spaces from 1 to 26 in the given table by appropriate litho-, chemo- and chronostratigraphic terms as well as characteristic bioevents which mark the this boundary. (5 Marks)



4- B: Mark the correct word from the three words in the brackets (5 Marks)

1. Bahrein Formation is (Jurassic) (Cretaceous) (Silurian) in age
2. The Abu Roash Formation is divided in the subsurface of the northern western Desert into (7) (5) (3) members
3. The Jurassic Wadi Natrun Formation is made up of (dolomitic limestone) (sandstone) (shale)
4. The Alamein Member is dolomitic limestone belonging to the (Lower Cretaceous) (Upper Cretaceous) (Upper Jurassic) age
5. The Khoman Formation is a distinctive white chalk belonging to the (Upper Cretaceous) (Lower Cretaceous) (Lower Eocene).

Question 5 (A- B): (10 Marks)

5-A: Select from list B the equivalent rock units to those of list A, and re-arrange the units of list A in stratigraphic order according to their ages. (5 Marks)

List A

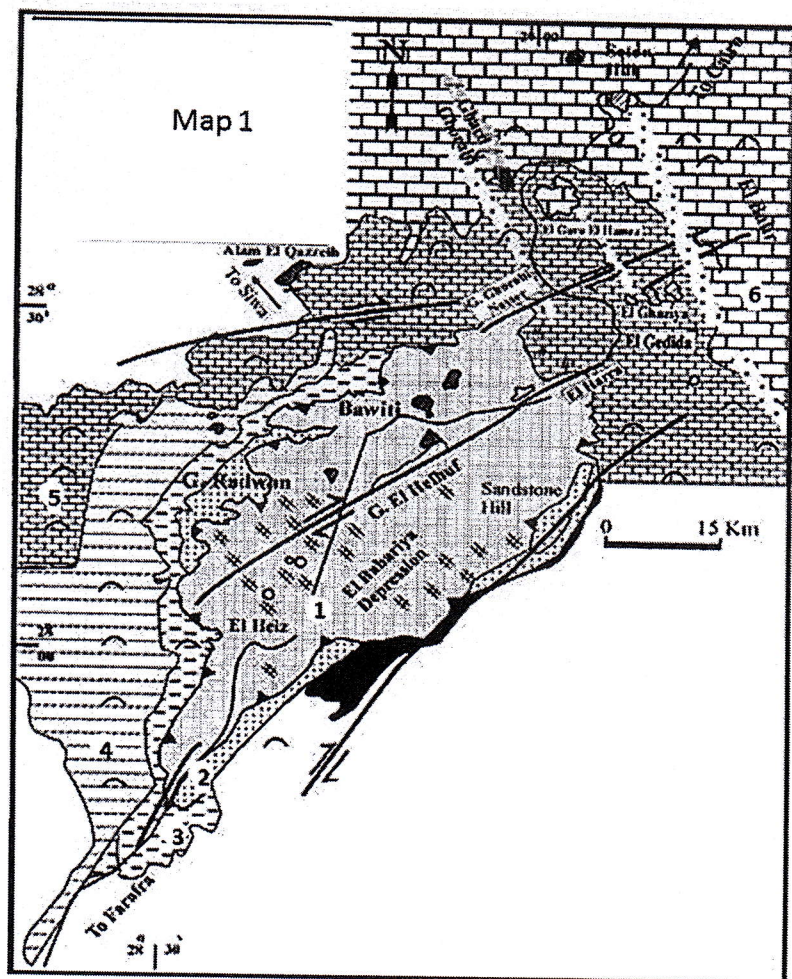
Belayim Formation
Kiseiba Formation
Dabaa Formation
Garra Formation
Birket Qarun Formation
Mamura Formation
Ryan Formation
Tanka Formation
Bir El Temsah Formation
Kareem Formation

List B

Rudeis Formation
Mokattam Formation
Um Mahara Formation
Quseir-Dakhla Formations
Syatin Formation
Tarawan Formation-Hanadi Member
Observatory Formation
El Qurn-Wadi Garawi Formation
Abu Madi Formation
Geisum Formation
Qasr El Sagha – Qattrani Formation

5-B: Look to the adjacent map (Map 1) and define the following: (5 Marks)

- i- The name of district
- ii- The names of rock units and their equivalent ages which are given from 1 to 6.

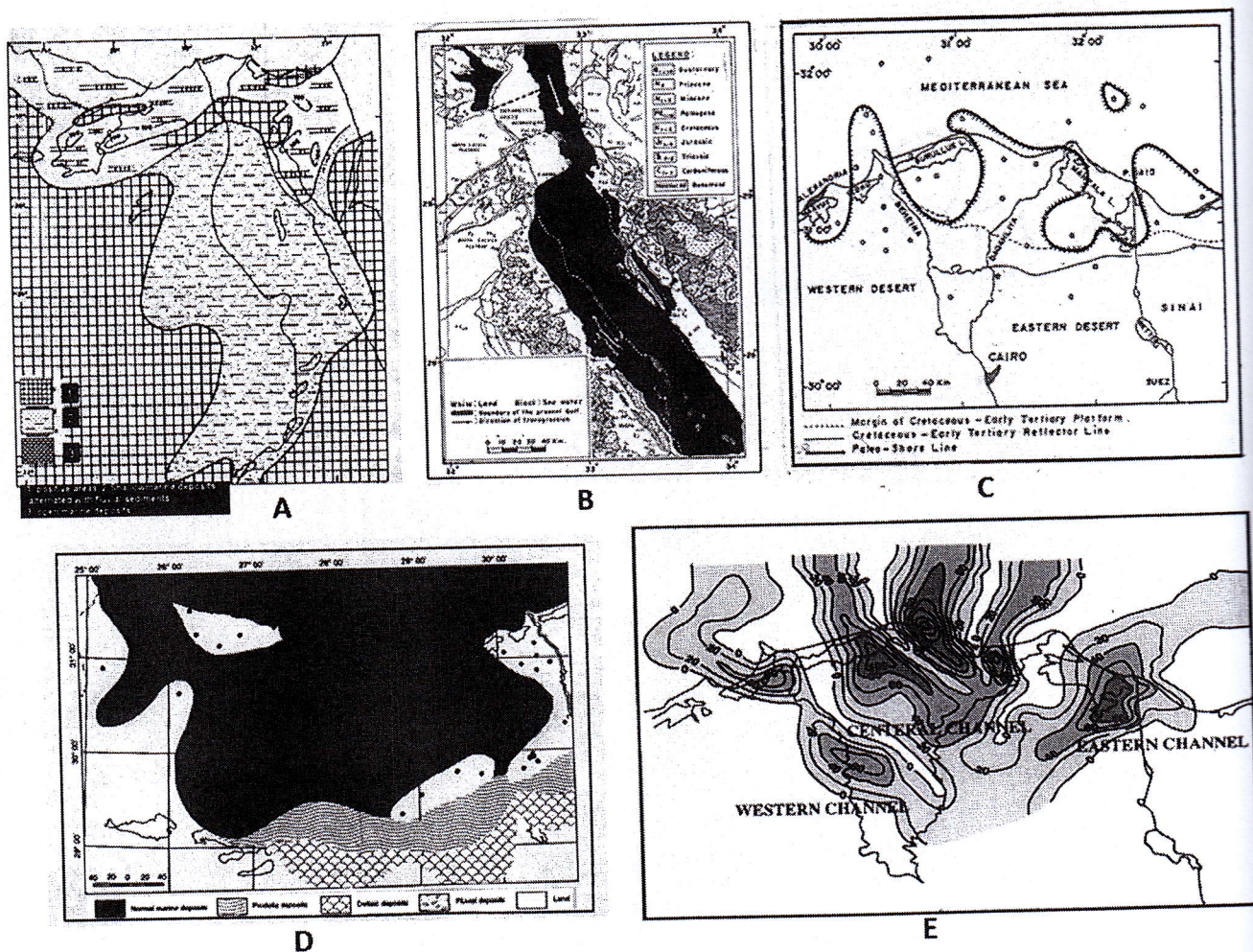


Part III (Structural Framework, Paleogeography and Paleoenvironment) (10 Marks)

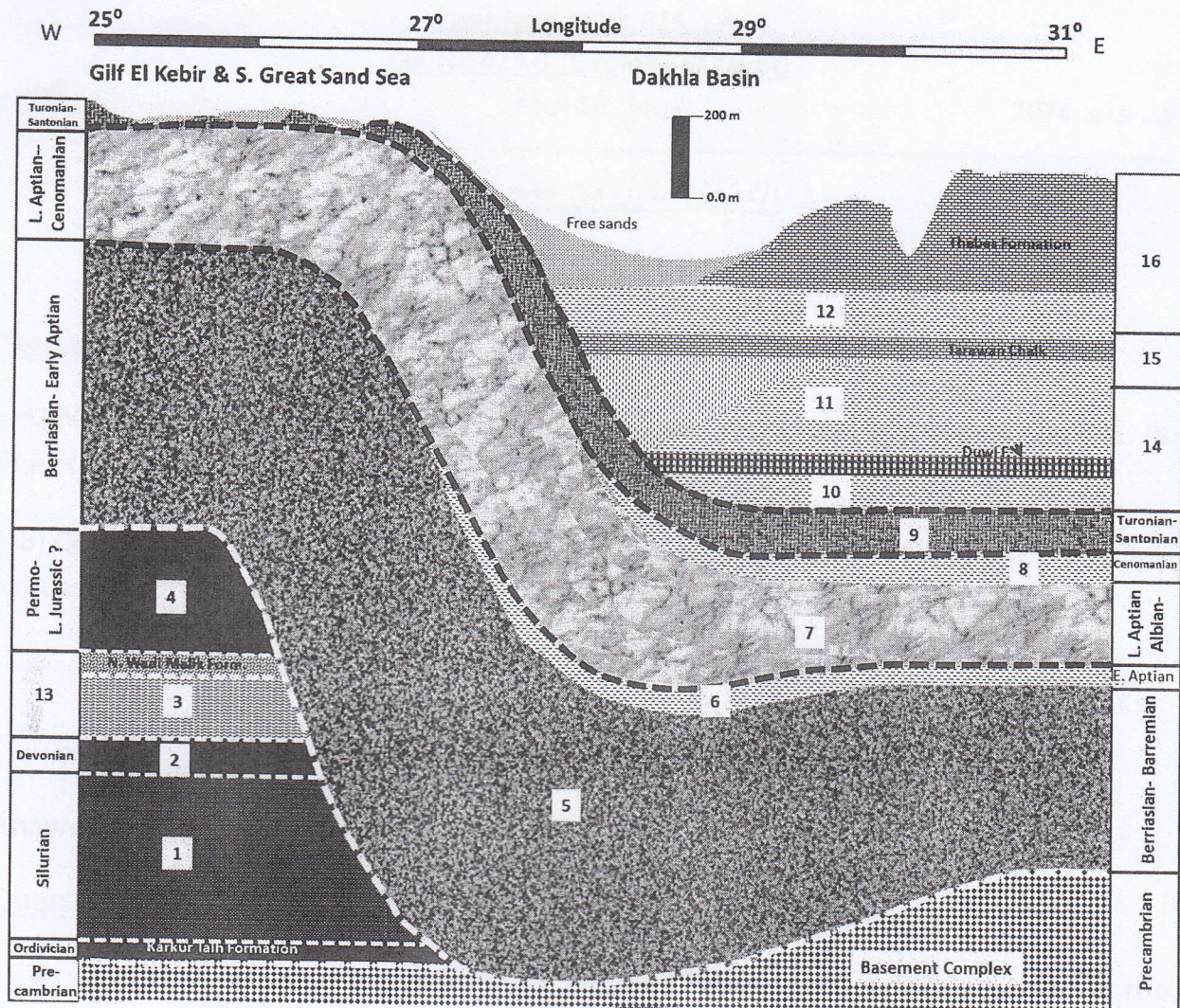
Question 6 (A-C) :Answer the following question: (10 Marks)

6-A: Write on the El-Gaby's classification (1975) concerning the Egyptian granites.
(3.5 Marks).

6-B: Look to the following paleogeographic maps and define the Period, Epoch and Absolute age during which the Egyptian land was submerged in a way such as in figures A, B, C, D and E. (2.5 Marks)



6-C: You have a correlation chart of the rock units exposed between the Gilf El Kebir at west and Dakhla –Kharga stretch at east in the southern Western Desert. Define the rock units from 1 to 12 and the time units from 13 to 16 in the chart (4 Marks)



Good Luck. Prof. Khaled Ouda; Prof. Ali Khudeir



Final Exam in

Hydrogeology and Petroleum Geology (G460)

(4th level, special geology, geochemistry and geophysics groups)

Total 25 Marks

Total time (2H)

=====

Part I Petroleum Geology

Shade the correct answer A, B or C (15 marks)

I. Choose the correct answer:

1. Shale is called fair source rock when contains amount of organic matter ranges between:
a. TOC: 1-2 wt% b. TOC: 0.5-1 wt% c. TOC: >2 wt%
2. The high-quality reservoir rock contains:
a. Closed pores b. Catenary pores c. Cul-de-sac pores
3. The organic matter that is more resistant to decay and derived from land plants called:
a. Proteins b. Lipids c. Lignin
4. Most of hydrocarbon reserves all over the world are generally occurred in:
a. Late Jurassic – Early Tertiary rocks b. Pliocene – Recent rocks c. Precambrian rocks
5. Combination of physical factors that promote the accumulation and retention of petroleum in one location is called:
a. hydrocarbon migration b. Reservoir rock c. Hydrocarbon traps
6. Pinch out and reefs are good examples for:
a. Structural traps b. Stratigraphic traps c. Combined traps
7. The size of oil globule and pore space of source rock control:
a. Primary migration b. Secondary migration c. Entrapment of oil
8. The electric log that used to determine hydrocarbon versus water-bearing zones is:
a. Gamma ray log b. Density log c. Resistivity log

9. Kerogen type I that can generate oil at high thermal maturity called:
 - a. Inertinite
 - b. Alginite
 - c. Vitrinite
10. The reservoir rock having the porosity range 10-15% is called:
 - a. Fair reservoir rock
 - b. Good reservoir rock
 - c. Excellent reservoir rock
11. Which factor of the following cause decrease in porosity:
 - a. Silica overgrowth
 - b. Dolomitization
 - c. solution
12. The Messinian evaporites of Late Miocene time is a significant seal rock in:
 - a. Western Desert
 - b. South Egypt
 - c. Gulf of Suez
13. Combined geological interpretation to identify the key parameters and risk elements are shown on:
 - a. Play map
 - b. Geologic map
 - c. Structure contour map
14. The heights of the liquid columns in tubes are proportional to:
 - a. Diameter of the tubes
 - b. Saturation of the reservoir rocks
 - c. Reservoir continuity
15. The inclined gas/oil contact (GOC) or oil/water contact (OWC) is generally accompanied with:
 - a. Hydrodynamic traps
 - b. Diapric traps
 - c. Stratigraphic traps

Shade (T) for True or (F) for false statements (10 marks)

16. Sour hydrocarbons have very low content of Sulphur.
17. Electrical and seismic methods are subsurface geophysical methods applied in evaluation of the petroleum system.
18. The high-quality reservoir rock contains well-sorted grains.
19. Syrian Arc Folds form the bulk of productive traps in Western Desert.
20. Stratigraphic traps are formed by flow due to density contrast.
21. The O/C elemental ratio is higher in type III kerogen than type I kerogen.
22. Preservation time is independent to the time of trap formation.
23. During diagenesis, the porosity transition can form good traps.
24. Neutron log is primarily used to evaluate formation porosity.
25. Heavy oil usually has low API.

Part II Hydrogeology (25 Marks)

Shade the correct answer A, B or C (10 marks; 1mark each)

26-The available water needed for plant growth represented only by the moisture volume ranging between:

- A-The wilting point and the field capacity
- B- The hygroscopic water and the wilting point
- C- The field capacity and the maximum water capacity

27-Darcys law is valid as

- A- Ground water velocity is directly proportion with the hydraulic gradient
- B- Ground water velocity is inversely proportion with the hydraulic gradient
- C- Ground water velocity is not related with the hydraulic gradient

28-The groundwater pumped from a well at the same time is

- A- lesser than that water flows toward it through a cylindrical section of 50 m radius around it
- B- more than that water flows toward it through a cylindrical section of 50 m radius around it.
- C- Equal to that water flows toward it through a cylindrical section of 50 m radius around it.

29-Darcys law can be applied when the groundwater flows

- A-Laminarly
- B- turbulently
- C- converging

30-The carbonate aquifer complex are:

- A-Granular racks
- B- Fissured rock
- C-Karstified rack

31-The Tertiary aquifer in Wadi El Qaa represents one of the

- A-Red sea costal aquifers
- B- West Nile delta costal aquifers
- C-North Sinai costal aquifers

32-The hydraulic gradient value along the surface of the cone of depression

- A-increases as the distance to the pumped well increased
- B-decreases as the distance to the pumped well decreased
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33-Radius of influence around a pumped well is equal to

- A-The horizontal distance between the center of that well and the point at which the draw-down equal zero
- B- The vertical distance between the static and the dynamic water levels within the pumped well
- C- The difference between the static and dynamic water levels at any point

34-The depression springs are related to:

- A-Gravitational springs
- B-Non- Gravitational springs
- C-Volcanic springs

35-Ghanate systems is mainly composed of:

- A-Vertical wells and tunnels
- B- Horizontal wells and tunnels
- C- Star- Ray wells and tunnels

Q4: Shade (T) for True (F) For False statements.(15 marks:1mark each)

- 36-The groundwater aquifer is mainly composed from an aquitard material.
- 37-Darcys low is valid when the relationship between groundwater velocity and the hydraulic gradient is linear.
- 38-The draw-down represents the vertical distance between the static and the dynamic water levels at any point.
- 39- Darcys low is not valid to be applied in case of colloidal deposits.
- 40-The total groundwater volume in the world is more than the volume of the saline water in the oceans.
- 41-When the groundwater pumped, an equilibrium state is reached when the groundwater out flow equals the groundwater inflow.
- 42-The field capacity is the amount of the remaining water within the soil after the excess gravitational water has drained away.
- 43-The moisture equivalent is the amount of water at which a saturated soil will retain after being centrifuged with centrifugal force 10 times that of gravity.
- 44- The field capacity and wilting point represent the upper and lower limits of moisture needed for plant growth.
- 45-The fossil water is that water trapped the rocks during their deposition.
- 46-Generally the specific yield values increase as the grain size of the aquifer material increase.
- 47-The moisture concentrated around the soil particle is more in the case of hydroscopic water than that in capillary water.
- 48- An aquitard materials are not porose nor impermeable.
- 49-In general, the specific yield values increase as the grain size of aquifer material increase.
- 50-In the confined aquifers the water table represents the upper surface of the aquifer.

Good luck,,,



Final Exam in

Hydrogeology and Petroleum Geology (G460)

(4th level, special geology, geochemistry and geophysics groups)

Total ⁵⁰25 Marks

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Ore Forming Processes (438g)

A. Choose the correct answer between brackets (10 pts)

1. Leaching of soluble elements leaving concentrations of insoluble elements is named (residual – supergene – hydrothermal – metasomatism)
2. Separation of Cr-ore from the magma is named (liquid immiscibility – magmatic segregation – placer – Skarn) type deposit
3. Leaching of certain elements from the upper part of a mineral deposit and their reprecipitation at depth produce higher concentration is named (magmatic fractionation – pegmatitic – residual – supergene enrichment)
4. Settling out of Cu-Ni sulphid melts from magma with decreasing temperature is named (metamorphic – placer – liquid immiscibility – laterites)
5. Ore deposits formed by replacement of carbonate wall rocks adjacent to an intrusive body is named (hydrothermal - magmatic – supergene enrichment – skarn)
6. Sn-W, Beryl deposits associated with coarse grained felsic rocks is named (magmatic segregation – pegmatitic – placer – metasomatic)
7. Minerals concentrated by flowing surface water and depositing high density minerals either in stream or near costlines is named (residual – supergene enrichment – pegmatitic – placer) deposit.
8. Stratiform accumulations of sulfide minerals that precipitate from hydrothermal fluids in the seafloor but also land-based volcanic is named (volcanogenic massif sulphide – porphyry type deposits – skarn type – residual) deposit.
9. Ore minerals are dominantly structurally controlled and which are spatially and genetically related to felsic to intermediate intrusions is named (magmatic - porphyry type - epithermal - metamorphic) deposit.
10. Cassiterite and wolframite ores which can be formed by hydrothermal processes at high temperature is named (mesothermal – epithermal – hypothermal – skarn) deposit.

Look Back

B. Answer EIGHT ONLY of the following

1. What are hydrothermal deposits? Attempt a classification based on the temperature of deposition. (5 pts)
2. Differentiate between the following pairs of terms: (a) veins and stockworks; (b) epigenetic and syngenetic; (c) potassic and argillic alteration; (d) mesothermal and epithermal deposits e) hypogene and supergene deposits (5 pts)
3. Discuss the mineralogical and chemical changes associated with wall-rock alterations. (5 pts)
4. What are hydrothermal alterations? Discuss shortly the types of hydrothermal alterations associated with porphyry type deposits. (5 pts)
5. What are volcanogenic massive sulphide deposits. Mention the classification of VMS based on the type areas (5 pts)
6. Define sedimentary mineral deposits and briefly describe the various types. Cite examples. (5pts)
7. Classify metamorphism-related mineral deposits and citing examples. (5pts)
8. What are skarn deposits? Describe their characteristics and origin. (5 pts)
9. Mention the three categories of deposits that are formed by surficial processes, citing examples and what are the main agents responsible for their formation? (5 pts)

Best wishes

Mohamed Abdel-Moneim

**Final Exam of Statistical Methods
in Geophysics (G456)**

2024

(50 mark)

Time: 2 Hours

" الاجابه فى نفس الورقه "

Answer the following Questions

First Question

Complete the missing answer. (20 mark)

- 1- The simple random sample of objects should then possess the following qualities:
 - a)
 - b)
 - c).....
 - d).....
- 2- The minimum sample size is.....
- 3- One of the main uses of geostatistics is to
of a sampled variable over the whole area of interest, which is referred to as
- 4- The statistician's sample is
.....
.....
- 5- The spatial sample is
.....
.....
- 6- Representative Sample is
.....
.....
- 7- In geostatistics we usually used the.....grid with Cells
- 8- Interpolation techniques can be classified in into classes
- 9- All variances that are non-zero will be numbers
- 10- Continuous Variable is
.....

Second Question

Answer (T) for true sentences or (F) for false sentences (2 marks each).

- 1- The coefficient of variation is the standard deviation divided by the mean.
- 2- In any natural spatial distribution, it is almost possible that the observations at each location are independent
- 3- Geostatistics is used for simulation.
- 4- The coefficient of variation is a dimensionless measure of variation.
- 5- A variable that can be measured numerically is called quantitative variable such as Stratigraphic Unit and geologic age.
- 6- Interpolation is used because field data are expensive to collect, and can't be collected everywhere.
- 7- The assumption that makes interpolation a viable option is that spatially distributed objects are spatially correlated.
- 8- Data collected on the same element for the same variable at different points in time or for different period of time called time series data.
- 9- Covariance provides a measure of the strength of the correlation between two sets of random variates.
- 10- Abrupt methods produce a smooth surface between sample points.
- 11- Gradual methods produce surfaces with a stepped appearance.
- 12- Isolines or contours are used to define a common characteristic along a point
- 13- Lines to point interpolation are the most frequently performed type of spatial interpolation done in GIS. e.g. Precipitation and rainfall data
- 14- Approximate interpolators are used when there is some certainty about the given surface values
- 15- The idea of geostatistics is the points which are close to each other in the space should be likely close in values.

Put your answer inside the table.

No.	True or False	No.	True or False	No.	True or False
1		6		11	
2		7		12	
3		8		13	
4		9		14	
5		10		15	



**Fourth Level Examination in
Sedimentary Basins & Sequence stratigraphy (G420)
For Geology and Geophysics students**

Time: Two Hours

(50 degree)

1-June.-2024

PART-I: Sedimentary Basins (25 degree)

I- Answer the following question:

- 1- a. write an account on the basin shapes. (4.5 marks)
b. what are pre-depositional basins? Mention the characteristics of these basins. (4.5 marks)

II- Answer TWO questions ONLY from the following:

- 2- a. What is a rift basin? (4 marks)
b. Why are rifts important? (4 marks)
3- a. Where are the foreland basins formed? In subduction-related settings or collision-related settings? (4 marks)
b. Describe briefly the sedimentary-fill in back arc basins. (4 marks)
4- If you drill through a passive continental margin what is the rock succession you would expect to see from base to top? (8 marks)

PART-II: Sequence Stratigraphy (25 degree)

I-Write a briefly on TWO question ONLY of the following:

(Illustrate your answer by diagrams):

(10 marks)

1. Explain the different types of parasequences that can be generated by the interplay between rate of sediment supply (S) and rate of accommodation space generation (A). Consider the situations when ($S > A$), ($S = A$) and ($S < A$).
2. Write on and differentiate differences between:
- a. Sequence boundaries (SB). b. Type 1 and Type 2 sequence boundary.
c. Maximum Flooding Surfaces (MFS). d. Marine Flooding Surfaces.
3. a. Explain the term "**Depositional Sequence**" and the different **System Tracts** that may constitute a sequence. Relate the systems tracts to **eustatic sea level changes**.
b. Is high sea level transgression or regression?

II- Choose the correct answer for the following statements

(9 marks)

4. the movement of coastline landward in response to a transgression; can occur during sea level rise with low sediment flux

- a. retrogradational
- b. formation
- c. progradational
- d. accomodation

5. Sequence stratigraphy focuses on

- a. Paleoecological frameworks characterized by unique fossil assemblage
- b. The order in which the strata accumulated combined with depositional and erosional surface frameworks to interpret depositional settings
- c. Basin modeling and sea level
- d. Astroblemes and other allochthonous events that can have local and regional implications, resulting in unique traps

6. Bounding surfaces

- a. Are subdividing surfaces of the sedimentary section and are commonly generated by the changing relative sea level.
- b. Surfaces that never tie to rebounds due to isostasy and eustasy.
- c. Are boundaries that never have to do shales and TOC, and cannot be considered key indicators of the kitchen.
- d. Are blurring surfaces that have to do with fracture patterns.

7. Stacking patterns include

- a. Parasequence
- b. Progradation
- c. Retrogradation
- d. Transgression
- e. All of the above

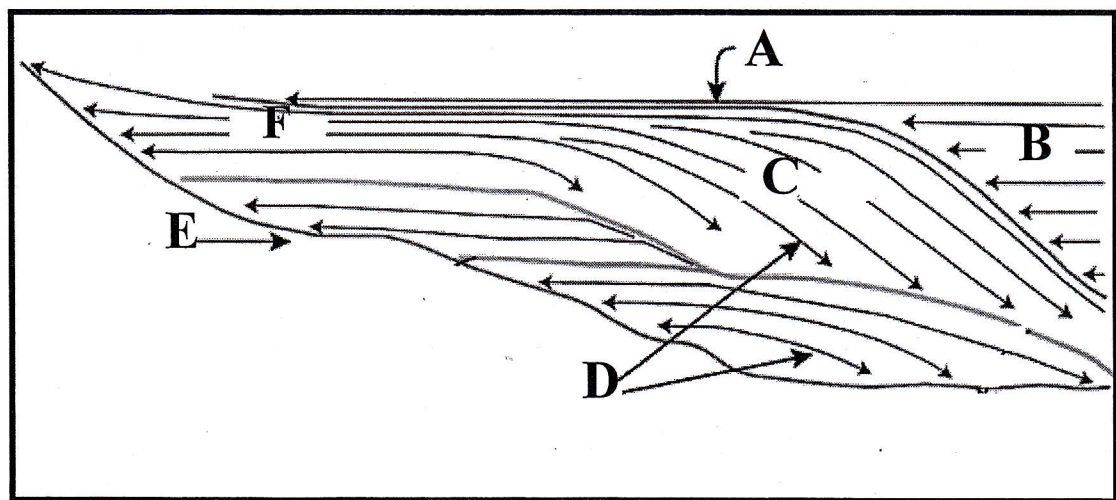
8. A systems tract consists of

- a. The regressive deposits that form when sediment accumulation rates exceed the rate of relative sea-level rise
- b. Genetically associated stratigraphic units that were deposited during specific phases of the relative sea-level cycle
- c. Tectonically active basins that adjoin each other

9. A highstand systems tract consists of

- a. All the transgressional deposits that accumulated after the onset of a relative sea-level fall and before the start of the next relative sea-level rise
- b. All the regressional deposits that accumulated after the onset of a relative sea-level fall and before the start of the next relative sea-level rise
- c. Deposits that accumulate after the onset of relative a sea-level rise
- d. Deposits that contain characteristic transform fractures that often stream biogenetic fluids

10. _____ formed when the transgressing sea reworks either the prior sequence boundary or the sediments that may have collected during the forced regression that may have followed the generation of that sequence boundary.
- Condensed sequences
 - Ravinement erosion surface
 - Contact metamorphism
 - Secondary dolomite mixed with sphalerite
11. Accommodation was defined by Jervey (1998) as "the space available for potential sediment accumulation. This space is the combined product of movement of:
- The sea surface: global sea level measured from a datum such as the center of earth)
 - The sea floor (tectonics)
 - Changes in rates of sediment accumulation
 - All of the above
12. The movement of coastline landward in response to a transgression; can occur during sea level rise with low sediment flux
- Retrogradational
 - Formation
 - Progradational
 - accomodation
13. Identify the different types of seismic reflections and terminations given in the following figure. (6 marks)



A- B- C-
D- E- F-

-----GOOD LUCK-----

Prof. Dr. Mohamed Ahmed Soliman

(1- June, 2024)

Prof. Dr. Ahmed-Reda El Younsy



كلية العلوم - قسم الجيولوجيا



جامعة أسيوط

الامتحان النهائي لمقرر (٤٤٥ ج) جيولوجيا تصويرية واستشعار عن بعد

Photo-Geology and Remote Sensing

الزمن : ساعتان

(50 marks)

مايو ٢٠٢٤

I- Question One:

(15marks)

Complete the following sentences by the appropriate words, then rewrite them in your answer paper :

- 1- The regions of the spectrum that are not strongly affected by atmospheric absorption are called

Scattering zones - atmospheric windows - non-absorption zones

- 2- The focal length of the photographic lens is shown on aerial photographs so that it can be used to calculate

The photograph area - scale of the aerial photo - The height of photographed points

- 3- Remote sensing systems that measure naturally available energy are called

Active systems - Passive systems - Optical systems

- 4- The separation ability between objects of the sensor, which refers to the size of the smallest phenomenon that can be detected, is called.

Spatial resolution - spectral resolution - temporal resolution

- 5- Transmittance and absorption during interactions between electromagnetic radiation and matter are called...

Surface phenomena - volume phenomena - radiation phenomena

- 6- The land cover of oblique aerial photographs takes the form of

Rectangular area - Trapezoidal area - quadrangular area

- 7- The French SPOT satellite crosses the equator at local solar time approximately at

9.30 Am - 10.30 Am - 11.30 Am

- 8- Vertical aerial photographs are the pictures that are taken when the optical axis of the camera is... ..

Inclined by 45° - directed vertically - tilted by 2°-3°

- 9- The second and third generation of Landsat satellites are distinguished by having revisit periods of

18 days - 16days - 14days

- 10- Satellites with Geostationary orbits are used in.....

Earth observation missions - Radar Imagery - Communication purposes

باقى الأسئلة على الصفحة التالية

- 11- Scanners on the Landsat-7 satellite sense electromagnetic radiation in
4 spectral bands - 5 spectral bands - 7 spectral bands
- 12- Landsat satellites cover a strip of land below orbit (swath) with a width of
215 km - 185km - 100km.
- 13- Spectral resolution is defined as the ability of the sensor to determine periods of wavelength.....
Equal bands - every band has the same frequency - bands with definite wave length
- 14- Sun-synchronous satellite orbits cover each area of the world at.....
the same angle of vision - a constant local sun time - different day times
- 15- The thermal infrared region extends from.....
0.7 - 1.3 μ m - 3 - 14 μ m - 1.3 – 3 μ m

Answer only TWO questions from the following.

II- Question Two :

(17.5 marks)

The electromagnetic spectrum is divided into many bands that are used in remote sensing techniques... Mention four of these bands and how to collect data for each of them.

III- Question Three:

- Give reasons for each of the following:

(17.5 marks)

- A) The SPOT satellite's scenes are characterized by the possibility of being displayed and analyzed as a three-dimensional model.
- B) Thermal remote sensing is a type of passive sensing.
- C) Radar imagery is suitable in all weather conditions, as well as photography during the day or at night.

IV-Question Four:

Compare between the following:

(17.5 marks)

- A) The data collected by the Multi-Spectral Scanner (MSS) sensor in **Landsat-1, 2, and 3** and the data collected by the Thematic Mapper (TM) sensor starting with **Landsat-4.**
- B) Geostationary Orbit satellites and Near-polar Orbit satellites

GOOD LUCK!

Prof. Moustafa M. Youssef

Assiut University
Faculty of Science
Geology Department

SUBJECT: Medical Geology examination (436G)
Mark: 50 Marks
Time allowed: 2 hours

First Question:

Discuss the health impact of radon and the factors influence the risk of radon- related lung cancer due to exposure? (10 marks)

Second Question:

Discus the importance of the following elements to the health of the human body.

1- Manganese 2- Cobalt 3- Iodine 4- Cr 5- Molybdenum (10 marks)

Third Question:

Compare between the following elements in the earth's crust and in the human body.

Oxygen, Silicon, Iron, Calcium, Sodium, Potassium and Magnesium (10 marks)

Fourth Question:

Write short notes on the Major, Minor and trace elements of the human Body. (10 mark)

Fifth question:

Although volcanoes are very harmful to the health of human body, they have many important properties, comment? (10 marks)

Credit hour system: first semester; final examination
Geophysics Program (Academic Year 2023-2024)
Geoarchaeology (G 458)

Fourth Level

Allowed Time: 2 Hours

ملحوظة: الامتحان في ثلاث صفحات

(50 M) الجزء التحريري

Choose the correct answer from A, B, C, and D (one mark each).

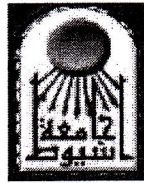
1. Soil phosphate mapping is the most widely used chemical method for archaeological site prospecting because: (A) Phosphate is readily fixed to soil particles after the decomposition of organic material; (B) Phosphate is more abundant in the soil; (C) Phosphate is easy to analyze; (D) It is a cost-effective method.
2. Prehistoric arrowheads, knives, and spear points in many parts of the world, including Mexico and Central America, were made with very sharp cutting tools from: A) serpentinites; B) alabaster; C) sandstone; D) obsidian flake.
3. In the case of arches, the bedding plane should be: A) radial and at the same angles to the face of the arch; B) radial and at right angles to the face of the arch; C) the stone blocks should be the same in which they were originally deposited; D) the bed should be vertical.
4. Tools to re-create ancient landscapes are: A) geomorphology and sedimentology; B) tectonics; C) soil studies; D) petrography.
5. The most crucial elements that were readily accessible in their native form and had significant value for ancient civilizations were: (A) iron; (B) gold and copper; (C) aluminum; (D) cobalt.
6. Assist in evaluating the impact of the post-depositional environment on the condition or safety of the archaeological deposits: (A) conducting geochemical investigations; (B) conducting geomorphological and geoarchaeological investigations; (C) utilizing geophysical exploration techniques (D) conducting biological studies
7. The Turin Papyrus Map illustrates a 15 km stretch of: (A) Western Desert; (B) Wadi Alaqi; (C) Wadi Hammamat in the Eastern Desert; (D) Fayoum area.
8. Plaster differs from mortar primarily in: (A) having high amounts of ash; (B) having high amounts of hematite; (C) having a temper dominated by sand rather than gravel-size material; (D) having dominant silica content rather than feldspar.
9. The stones commonly used as finely dressed blocks, slabs, or columns in monumental and costly buildings were: (A) shale; (B) limestone; (C) sandstone; (D) granites and marbles.
10. The calcareous-sandstone temple at Qasr el-Sagha in northern Fayoum belongs to the: (A) Islamic Era; (B) Middle Kingdom; (C) Early Kingdom; (D) Late Kingdom.
11. Seasoning of stones means: (A) darkens the stone; (B) increases the stone's porosity; (C) makes the stone hard and compact; (D) reduces the cost of the stone.
12. The stones used in the construction of the Hibis sandstone temple were likely sourced from: (A) Isna shale; (B) Gebel el-Teir quarry; (C) Eastern Desert quarries; (D) Minia quarry.

13. From early Dynastic times onward, the preferred material for pyramids, mastaba tombs, and temples within the region was: (A) diorite; (B) limestone; (C) gravels; (D) sandstone.
14. The beginning of trade around the Aegean can be marked by obsidian flakes, which occurred around: (A) 2000 BC; (B) 3000 BC; (C) 4000 BC; (D) 5000 BC.
15. The earliest metal tool to be manufactured around 6000 BC was: (A) gold; (B) lead; (C) zinc; (D) copper.
16. Geochemical exploration tools used to locate ancient settlements include analysis of: (A) silicon and aluminum; (B) silicon and oxygen; (C) iron and aluminum (D) phosphate, nitrogen, and carbon.
17. Archaeologists analyze ancient civilizations by investigating various aspects, including: (A) geological formations; (B) soil composition; (C) artifacts; (D) groundwater sources
18. The provenance of artifacts is determined by techniques such as: (A) mineralogy (B); stable Isotopes (C); trace Elements: (D) All of them.
19. Gold occurrences in Egypt and Sudan are located in: (A) Phanerozoic sediments; (B) Precambrian basement rocks; (C) along the Mediterranean coast; (D) Recent basalt volcanoes.
20. Preferred location for urban civilizations: (A) adjacent to and within the floodplains of major river systems; (B) near oceans; (C) within desert regions; (D) surrounding mining areas.
21. A chemical sedimentary rock formed by the deposition of silica from seawater and commonly found in many prehistoric sites: (A) limestone; (B) phosphate; (C) chert; (D) anhydrite.
22. Pottery is the general term for artifacts made mostly from: (A) granite; (B) clay; (C) limestone; (D) tuffs.
23. The ideal characteristics of the building stone should: (A) possess hardness, strength, and durability; (B) be soft; (C) have a light color; (D) be laminated.
24. The branch of science that provides a wealth of information for mineralogists involved in archaeometry studies of our past is: (A) GIS; (B) remote sensing; (C) archaeomineralogy; (d) archaeometry.
25. The main source material for archaeological ceramics is: (A) gypsum; (B) sediments rich in clay; (C) quartz; (D) gneisses.

Answer (T) for true sentences or (F) for false sentences: (One mark each)

26. Quartzite can be shaped more precisely than chert.
27. Grinding equipment is an example of a prehistoric artifact.
28. Widan el-Faras basalt quarry belongs to the Middle Kingdom, while the Chephren's Quarry for anorthosite-gabbro gneiss (Young Kingdom).
29. Well-constructed Roman settlements in the Mons Claudianus were made from tonalite gneiss quarry.
30. Silicified sandstone quarry for grinding stones located at Gebel Qubbet el-Hawa near Aswan.
31. The dolerite porphyry quarry in Rod el-Gamra belongs to the Dynasty-Late Period.
32. Cosmetic and ceremonial palettes during Late Predynastic and Early Dynastic Periods were made from talc.

33. Ornamental stones have attractive colors and patterns, and also take a good polish due to their greater hardness.
34. Abrasion and fire resistance are the main chemical properties of building stones.
35. Geoarcheology helps understand the climatic changes between the wet and dry periods that prevailed in the Western Desert.
36. Red ocher has been used for decorations since at least the Mousterian tradition.
37. Diorite and gabbro were the main building stones of ancient Egypt.
38. Geoarcheology threw light on the behavior of the River Nile (aggradation and degradation phases) during the Late Pleistocene and Holocene.
39. The gold occurrences are located in Egypt and Sudan, called the Arabian-Nubian Shield (ANS).
40. Prehistoric sites occurred after the culture began writing records of daily life.
41. Among artifacts, lithics, such as basalt and other volcanic rocks, limestone, and especially flint and chert, were the principal components of prehistoric periods.
42. Along the Red Sea coast, the temples and other important buildings of the Ptolemaic and Roman periods were built with blocks of gabbro.
43. All kinds of land use have an impact on soil properties, such as bulk density, weathering, particle redistribution, and magnetic, electric, and chemical properties.
44. Unaltered granitic rocks usually show positive gold anomalies.
45. The archaeological record mainly consists of artifacts, features, and ecofacts.
46. The most important contribution of Wadi Kubbaniya is the discovery of a well-preserved Late Paleolithic human skeleton.
47. Activities such as firing, drainage, ploughing, digging, manuring, cultivation and grassing can be traced by means of geophysical and geochemical explorations.
48. History is the shared ways of life learned by a group of people, including their language, religion, technology, and values.
49. Any place where human activity occurred and where artifacts were found is called a historical site.
50. The post-depositional environment consists of all the physical and biological forces that play on the archeological deposits after the archeological site is abandoned.



Frist Semester Final Examination

Subject: Subsurface Geology (409G)

Student: Fourth level (all groups).

Total marks 50

Answer the following questions

I- Answer (T) for true sentences or (F) for false sentences (0.5 mark each).

1. Regional sources of subsurface data are generally include surface and subsurface sources. The surface sources such as borehole temperature, porosity and permeability of the reservoir rocks.
2. The subsurface sources of data are bringing only rom cores, cuts and well logs.
3. In structure contour map, reverse fault of downthrown more than the thickness of the faulted bed, the contour lines at the location of the fault plane show repetition in the contour values.
4. In structure contour map, normal fault of downthrown more than the thickness of the faulted beds, the contour lines show fault gap.
5. The erosional surfaces between two rock units can defined from the isopach maps of the two units by alternative thick in the lower unit opposite thin in the upper unit.
- 6- The main objectives of subsurface sectioning and mapping are hydrocarbon exploration and evaluation only.
- 7- The reference surface in constructing structure cross section and structure contour map is the main sea level.
- 8- The reference surface in constructing geophysical cross sections is the bedding plane.
- 9- In normal cross sections or fence diagrams the vertical scale is similar to the horizontal.
- 10- In case of construction structure contour map for any bedding plane, this plane may be eroded or truncated.
- 11- Structure contour maps only can show the tectonic history of many tectonic phases.
- 12- Structure contour maps, of bedding planes can show the parameters of the fault plane.
- 13- Paleogeologic maps can used in reservoir evaluation.
- 14- For studying the paleotectonics, structure contour maps are used in conjunction with palinospastic maps.
- 15- Ratio maps are constructed to show ratio of two components in the rock unit.
- 16- Percentage maps are generally applied in defining the paleoenvironment.
- 17- Isopach maps for dipping beds are constructed by using the drilled thickness of the rock unit.
- 18- Isolith maps are constructed to show the aerial distribution of the sedimentary facies.
- 19- Isochore maps are constructed based on the true thickness of the rock unit.
- 20- Folding on the structure contour maps is identified by nosing in the contours with acute angle.

- 21- Bending in contours on the structure contour maps pointing to anticline folds.
- 22- Missing of contours in a definite location on structure contour maps indicates normal fault of downthrow more the thickness of the faulted bed.
- 23- Oval regular contour lines in isopach map of definite rock unit indicating to shelf area.
- 24- Random contours in isopach map of definite rock unit indicating to interacratonic area.
- 25- Reverse faults with different downthrows are easily detected from structure contour map alone.

II- Choose the correct answer A, B or C of the following (one mark each)

- 26- Offlap phenomena in subsurface can be recognized from successive isopach maps by:
 - a- Upward regular migration of zero thickness toward the recent layers
 - b- Upward regular migration of zero thickness toward the old layers
 - c- Upward irregular migration of zero thickness toward the recent layers
- 42- concordance in contours of ratio, percentage, isolith and isopach maps for different facies of rock unit indicates to:-
 - a- Regular sedimentation
 - b- Discontinuities in sedimentation
 - c- Migration of strand line
- 43- The salt-dome morphology and the related petroleum traps can be recognized and evaluated from:-
 - a- Isopach maps
 - b- Structure contour maps
 - c- Both a & b
- 44- Beds attitudes (strike & dip) and fault parameters can be determined from
 - a- subsurface stratigraphic cross section
 - b- Subsurface normal structural cross section
 - c- Subsurface schematic cross section
- 45- In log correlation for structures identification, the correlation must look for:-
 - a- Missing of one or more layers in some logs
 - b- Thinning or thickening of layers in some logs
 - c- Both a & b
- 46- Drilling horizontal layers by directional drilling TMT is increasing with:-
 - a- Decreasing of deviation angle
 - b- Increasing of deviation angle
 - c- Increasing of dip angle
- 47- In isopach map, abrupt increasing of contours in the upthrow side of the fault plane in compared with in the downthrown side indicating to:-
 - a- Normal growth faults
 - b- Reverse growth faults
 - c- Wrench growth faults

48- Repetition of layers during vertical drilling without definite changing in the repetition interval along the section in different wells indicates to:-

- a- Reverse fault
- b- normal fault
- c- recumbent fold

49- For tracing the subsurface structures along definite direction, the collected subsurface depth to the bedding planes must be referred to:

- a- Non- eroded bedding plane.
- b- Main sea level
- c- Unconformity surface

50- Geochemical cross sections and fence diagrams are applied to:-

- a- Detect subsurface structures
- b- Detect the subsurface environments
- c- Lateral and vertical chemical variations of the rock components

Best wishes

Answer the following questions:

First Question: choose the correct answer (10 Marks)

- 1- All rocks have Character.
A- lithostratigraphic B- magnetostratigraphic
C- chronostratigraphic D- all of these
- 2- Which of the following terms is not an example of chronostratigraphic units? A- Stage B- Member C- System D- Series
- 3- Paraconformity is inferred mainly by.....
A- fossils B- basal conglomerate C- irregular surfaces D- paleosol
- 4- The observation that sediment is deposited in essentially flat layers led to
A- the principle of cross-cutting relations
B- the principle of lateral continuity
C- the principle of original horizontality
D- the principle of superposition
- 5- What process is responsible for building successive rock layers on Earth?
A- Erosion B- Faulting C- Folding D- Deposition
- 6- When rock types change laterally within chronostratigraphic units; reflects spatial changes in depositional setting.
A- Interfinger B- Intertongue C- Both of them D- none of them
- 7- What are the types of sedimentary rock?
A- Clastic; Chemical; Organic
B- Igneous; Metamorphic; Sedimentary
C- Clastic; Chemical; Inorganic
D- Clastic; Igneous; Sedimentary

انظر خلف الصفحة

- 8- Which sedimentary contacts refer mostly to conformable relationship between two rock units?
 A- Intercalation B- Gradational C- both of them D- none of them
- 9- The most famous ore occur within the Upper Cretaceous sedimentary rocks are
 A- iron B- phosphorus C- Kaolinite D- all of these
- 10- Which of the formations are not belonging to the Nile Delta?
 A- Kafr El-Sheikh B- Nukhul C- Sidi Salim D- Qawasim

Second Question: (10 Marks)

- 1- In a stratigraphic table trace and arrange the Eocene rock units at Fayoum province, explaining the geologic important of these rocks.
- 2- Construct a stratigraphic table for the Syn-Rift rock units at Qusier area, discussing the economic importance of these units.
- 3- Write briefly an essay on the Oligocene rocks in Egypt..

Third Question: (10 Marks)

- 1- Define the geologic age and the stratigraphic relationship for five only of the following rock units: (5 Marks)

A- Kurkur & Esna	B- Halal & Raha
C- Timsah & Umm Barmeil	D- Dungal & Drunka
E- Idfu & Ranga	F- Abu Balas & Sabaiya
- 2- Mention the similarities and differences between Gabal Oweinat and Hafafit Dome relative to lithologic composition and age.

Fourth Question: (10 Marks)

- 1- Define the ophiolite term.
- 2- Write on the main ophiolite sequences occurring in the southeastern basement belt of Egypt.

انظر خلف الصفحة

Fifth Question: (10 Marks)

- 1- Compare between the Younger Metavolcanics (YMV) and the Dokhan Volcanics.
- 2- Compare between the Younger and Older Granite outcrops occurring in Egyptian basement.

Good Luck

Prof. Dr. Ali A. Khudier

Prof. Dr. Nageh A. Obaidalla



Assiut University

Faculty of Science

Geology Department

ECONOMIC GEOLOGY (G434) (الامتحان مكون من 4 صفحات)

Final Examination for B Sc Student

Academic year 2023 - 2024

Time allowed :2hours

Answer Only Five Questions from the following (Total 50 Marks)
Elucidate you answer with drawing as much as possible

Question No.1 Indicate by the sign (✓) or (X) the following statements (10 Marks)

- 1- Podiform or the Alpine-type chromite deposits are restricted to the ultramafic portions of ophiolite complexes where the Stratiform-type are restricted to the layered basic intrusions .
- 2-The surface water (meteoric water) and the connate water (deeply penetrating meteoric water) are not among different sources of subsurface hydrothermal waters that could precipitate ore deposits.
- 3- The Um Gheig stratabound carbonate hosted sulfides deposits were formed in basinal- diagenetic brines activity with no volcanic or plutonic associated intrusion.
- 4-The Sn-W mineralization are more often associated with S-type granites that derived from partial melting of continental crust that would normally include significant proportions of metasedimentary materials.
- 5-The internal zoning in pegmatites may attributed to fractional crystallization in situ under disequilibrium conditions which lead to a steady change in the composition of the melt with time.
- 6- The copper porphyry deposits form a belt all over the world with a geologic age range between 160- 35 my; and have a low ore grade Cu content.
- 7- For the formation of contact- metasomatic mineral deposits certain requirements are essential include the types of magma that contain the ingredients of mineral deposits which intruded at deep depths.

Continued over leaf

8--The sub sea floor hydrothermal system are responsible to wide range volcanogenic massive sulfides (VMS) e.g. Kuroko types, Japan and the Um Samuki, southern Eastern Desert, Egypt.

9- Gossans, may be an indicators of sulfide ores that lie beneath them.

10- B, F, and P, play important role on pegmatite formation from H_2O under saturated melt as they lower the granite solidus temperature to below $500\text{ }^{\circ}\text{C}$, so increase the range of temperatures over which magmatic crystallization occur.

Question No 2 Choose the correct answer:

(10 Marks)

1- Lateral secresion means: (a) diffusion of ore forming material from the enclosing rocks to a neighboring structure trap (b) an alteration haloes occur in the host rocks adjoining intrusion of an ore body(c) addition of new ore materials by uprising hydrothermal solution .

2- The G2, granites of Egypt characterized by being (a) calc-alkaline S-type granites, formed under compression environments. (b) alkali to per alkaline granites formed under extensional environments (c) subduction related I type granites of sub alkaline composition formed under compressional environments

3- Placer gold deposits are accessible from (a) the alteration zone close to the auriferous quartz veins. (b) the wades near or/ at the foot of gold bearing rocks (c) near high grad metamorphic rocks.

4-The facies concept for BIF formation whereby the progressive change from oxide through carbonate to sulfide phases was considered to reflect : (a) precipitation of iron minerals in successively more reducing environments (b) change in temperature and pressure conditions during deposition (c) tectonic factors.

5- Barite mineralized veins at Gebel El -Hudi Aswan, southern Eastern Desert, Egypt are: (a) high temperature fluids (b) low temperature fluids (c) sedimentary weathered products.

6- The ore minerals formed in early magmatic stage of crystallization are: (a) earlier than host rocks (b) later than host rocks (c) syngenetic with host rocks.

7-Graphite occur at Bent Abu Geraiya and Wadi Sitra; southern Eastern Desert , were formed through : (a) low to- medium grade metamorphism of the carbonaceous matter contained in the original sediments , (b) hydrothermal alteration matter contained in the original sediments, (c) through diagenesis of the original sediments .

8- Many rocks display relative preferences for certain ore such as: (a) chromite in granites, (b) tin deposits in peridotite , (c) Molybdenite in pink granite(G3).

9- Sodium carbonate (Natron) is the main salt of: (a) Natron Lake; Western Desert, (b) Siwa oasis ; northern Western Desert, (c) High Dam Lak; Aswan.

10--Greisens are important mainly for: (a) production of coarse k- feldspars minerals (b) an index of thermal metamorphic process. (c) production of Li mica lepidolite - muscovite minerals

Question No.3

(10 Marks)

A- What are the main factors you must take in your consideration for evaluating the potentiality of an ore body?

In Egypt, there are some important economic ore deposits which are genetically resulted from metamorphic processes, What are these deposits? and Where these deposits do occur? Mention its important common uses.

B- What are the different types of the iron ores occurred in Egypt? Discuss briefly the different genetic aspects of these important Egyptian ore types.

Question No .4

(10 Marks)

A-How mantel derived magma acquire higher sulfur content? Discuss briefly the different processes via which possible ores can be formed in this stag? Where you can look for these ores in Egypt?

B- What factors controlling and limiting the development of oxidation zone? What types of ores you look fore in the oxidation zone? Elucidate your answer with chemical equations.

Continued over leaf

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(10 Marks)

A-Discuss briefly the Genetic Classification of the Egyptian Gold Deposits. What are the main genetic differences between the Epithermal_gold (silver -copper) mineralization and the Mesothermal – Orogenic (Lode-gold) mineralization styles? How gold precipitation mechanism goes in the above two different environmental styles? Mention three important Egyptian gold bearing localities.

B-How the process for formation of evaporates salts goes? From Where the Egyptian evaporates resources comes?

Question No.6

(10 Marks)

A-What are the common characteristic features of porphyry copper mineralization? Where are the most important occurrences for copper mineralization in Egypt?

B- What are the essential features for the formation of hydrothermal mineral deposits? What are the evidences as well as the different types of fissure filling hydrothermal deposits? Mention the names and localities in Egypt for three different important ore deposits belonging to vein type mineralization.

Examiner Prof. Dr. Nadia Sharara بالتوفيق



First Semester Final Examination

Subject: Course No. G433

(Geochemistry)

Students: B.Sc. Students (Geology and Geology-Chemistry)

Date: May, 26, 2024

Part Two: Geochemistry of sedimentsTime allowed: one hour

Write on 3 only from the following (25 marks)

أجب في كراسة الإجابة

Question 1- Write On:

- A- Classification and composition of meteorites.
- B- Products of chemical weathering
- C- Hydrolysis process in chemical weathering

Question 2 – Compare between:

- A-Bauxites and laterites
- B- Reduzates and oxidates
- C-Siderophiles and chalcophiles

Question 3- Write On:

- A- Oxygen isotopes fractionation in marine environments
- B- Suboxic environments in early diagenesis

Question 4- Write On:

- A- Carbon isotopes fractionation in marine environments
- B- Oxidation of sulfides during weathering
- C- Write the chemical formula of the minerals: Sphalerite- Ilmenite - Fayalite

انتهت الأسئلة / مع أطيب الأمنيات بالتوفيق / أ. د/ ممدوح فراج سليمان

22) Harker diagrams are plotted from

- a) SiO_2 vs. alumina
- b) SiO_2 vs. oxides
- c) SiO_2 vs. alkalis
- d) SiO_2 vs. calcium

23) In magmatic evolution, the nature of the phases crystallizing can be inferred from

- a) the shape of the trends
- b) decrease of Mg
- c) increase of Fe
- d) none of the above

24) This diagram separates alkali and sub-alkali series

- a) SiO_2 vs. alkalis
- b) TAS
- c) Alumina vs. alkalis
- d) Mg vs. alkalis

25) The peraluminous magma is characterized by

- a) No particular minerals, mafics are pyroxene, amphibole, biotite
- b) Alkali-rich minerals such as alkali amphiboles and pyroxenes.
- c) Have Al-rich minerals such as biotite, muscovite, garnet, cordierite
- d) All the above

=====

الجزء الثاني في الصفحة رقم ٦
اقلب الورقة

16) There are curious instances of rocks having the same chemical composition, but consisting of entirely different minerals like

- a) pyroxenite and troctolite
- b) hornblendite and camptonite
- c) olivinite and dunite
- d) gabbro and olivine gabbro

17) Metamorphic rocks composed dominantly of amphiboles are referred to

- a) hornfels
- b) schists
- c) gneisses
- d) amphibolites

18) Biotite and hornblende are more commonly present than augite in

- a) diorite and gabbro
- b) granite and syenite
- c) felsite and alnoite
- d) hornblendite and spessartite

19) The major oxides in geochemistry should be

- a) 0.1 %
- b) < 0.1%
- c) $\leq 0.1\%$
- d) > 0.1%

20) The trace elements are analyzed using this method

- a) spectroscopy
- b) magnetic sector mass spectrometry
- c) XRF, ICP-MS, INAA
- d) none of the above

21) The radiogenic and stable isotopes are analyzed using

- a) spectroscopy
- b) XRF
- c) INAA
- d) magnetic sector mass spectrometry

Assiut University
Faculty of Science
Geology Department
Time allowed: 60 minutes

Date: May, 2024

**Final Exam of Geochemistry
G433**

الامتحان في ٦ صفحات

Part one

Please choose from the lettered expression that one which best answer the question.

Each question worth one point

1)What is the science governing the distribution of the chemical elements and their isotopes throughout the earth

- a) Petrology
- b) Structural geology
- c) Mineralogy
- d) Geochemistry

2)The High Field Strength Elements are

- a)K, Rb, Sr, Cs, Ba, Li
- b) Zr, Hf, Ta, Nb
- c) Pt, Au, Pd, Rh, Os
- d) He, Ne, Ar, Kr, Xe, C, S, Cl

3)What is the measuring unit of the oxides in geochemistry?

- a) ppm
- b) g/ton
- c) $\mu\text{g/kg}$
- d) wt%

4) Potassium carbonate and sodium carbonate combine to produce

- a) feldspars
- b) calcite
- c) apatite
- d) garnet

5) Phosphoric acid with lime (calcium carbonate) forms

- a) feldspars
- b) calcite
- c) apatite
- d) garnet

6) Titanium dioxide with ferrous oxide gives rise to

- a) ilmenite
- b) hematite
- c) magnetite
- d) none of the above

7) Any excess of silica above what is required to neutralize the bases will be separated out as

- a) plagioclase
- b) quartz
- c) feldspars
- d) albite

8) Magnesium carbonate and iron oxides with silica crystallize as

- a) olivine
- b) sericite
- c) amphibole
- d) muscovite

9) Magnesium carbonate and iron oxides with alumina and lime form the complex ferro-magnesian silicates of which the--- are the chief

- a) pyroxenes, amphiboles and biotites
- b) garnet
- c) corundum
- d) wollastonite

10) In the CIPW norm the excess of alumina crystallizes as

- a) wollastonite
- b) diopside
- c) hypersthene
- d) corundum

11) Acidic or siliceous rocks contain 66% of silica are called

- a) mafic rocks
- b) felsic rocks
- c) intermediate rocks
- d) ultrabasic rocks

12) If magnesia and iron are above the average, silica is present in greater quantity over ferro-magnesian minerals, these minerals occur

- a) augite
- b) hornblende
- c) biotite
- d) all the above

13) When the soda-bearing pyroxenes and amphiboles may be present

- a) with high silica
- b) With high alkalis
- c) with high alumina
- d) with high calcium

14) The lower the percentage of silica and the alkalis, the greater is the prevalence of

- a) sphene
- b) calcium feldspars
- c) apatite
- d) zircon

15) What are the minerals confined to deep seated intrusive rocks

- a) microcline and muscovite
- b) leucite and hypersthene
- c) hypersthene and quartz
- d) leucite and quartz

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Assiut University

Faculty of Science

Geology Department

ECONOMIC GEOLOGY (G434) (الامتحان مكون من 4 صفحات)

Final Examination for B Sc Student

Academic year 2023 - 2024

Time allowed :2hours

Answer Only Five Questions from the following (Total 50 Marks)
Elucidate you answer with drawing as much as possible

Question No.1 Indicate by the sign (✓) or (X) the following statements (10 Marks)

1- Podiform or the Alpine-type chromite deposits are restricted to the ultramafic portions of ophiolite complexes where the Stratiform-type are restricted to the layered basic intrusions .

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Continued over leaf

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Continued over leaf

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Examiner Prof. Dr. Nadia Sharara بالتوفيق

Credit hour system - Second semester - Final Examination
Mineral prospection and industrial minerals and rocks (G435)
Fourth Level

2023/2024

Allowed time 2 hour

ملحوظة: الامتحان في صفتين بالإضافة الى امتحان التنقيب المعدني

Part two: industrial minerals and rocks

الجزء التحريري (٢٥ درجة)

ظلل الاجابة (T) إذا كانت الاجابة صحيحة او (F) إذا كانت الاجابة خاطئة (نصف درجة لكل سؤال)

1. Kaolin and diatomite prevent the caking of ANFO.
2. The main uses of wollastonite are in the plastics, rubber, and ceramics industries.
3. Perlite is a water-bearing natural glass that contains silica, alumina, iron, titanium, calcium, magnesium, sodium, and potassium oxides.
4. Gypsum is used as a tire filler to add weight.
5. Perlite has more chemically active surfaces than vermiculite and is used as a carrier in insecticide sprays.
6. Vermiculite is found in lightweight gypsum plasters and fire-resistant plaster boards and can be used as a loose insulator.
7. Gypsum is one of the more common minerals in sedimentary environments, usually from precipitation in highly saline waters.
8. Sulfide ores comprise copper as argentite, silver as bornite, and chalcocite.
9. Quartz and feldspar are used in the glass industry.
10. Oysters and clams produce calcite and other carbonate minerals to form their shells.
11. Diamond is a very good lubricant.
12. Fluorite and calcite are used for toothpaste.
13. Heat and pressure cause new minerals to form as bonds between atoms break and new ones are created.
14. Examples of sulfide minerals include chromite, corundum, and ice.
15. For some minerals, color is directly related to one of the major elements, can be characteristic, and can serve as a means of identification.
16. Mica and talc are generally used in the ceramic industry.
17. The streak plate has a hardness of glass, so minerals with a Mohs hardness >7 will scratch the streak plate and won't powder the mineral.
18. Limonite has a yellow-to-brown streak.
19. Non-ferromagnesians include minerals such as olivine, pyroxene, hornblende, and biotite.
20. Drilling mud uses feldspar for density control.

21. Ferromagnesian minerals include muscovite, feldspar, and quartz.
22. Minerals are classified by their chemical composition and internal crystal structure.
23. Milling is the process that separates the minerals from the ore.
24. Hydrous (no water) and anhydrous (water) are the two major groups of sulfates.
25. Calcite is resistant to heat, electricity, and acids and is found in the paint and paper industry.
26. Barite is used in drilling mud because it is light, non-abrasive, and inert.
27. The greatest demand for Kaolinite is in the paper industry to produce glossy paper.
28. Cleavage is when a mineral breaks, but the surface is not regular and does not show cleavage.
29. Critical minerals are minerals required for national defense, such as beryllium and aluminum.
30. Non-ferromagnesian silicates are darker and have a heavier specific gravity than ferromagnesian silicate minerals.
31. Silver minerals are used in the production of photographic films.
32. Streaks can be useful for identifying metallic and earthy minerals.
33. In the paper industry, crystalline silicates absorb and prevent ink from striking through.
34. Pyrophyllite is important ceramic filler.
35. A crystal is composed of a structural unit that is repeated in three dimensions.
36. The hardness of a mineral is its ability to resist scratching.
37. The material used to shape and polish gemstones must be as soft as the gemstone itself.
38. Cleavage can be described as perfect, good, imperfect, or poor.
39. Graphite is an excellent electrical insulator.
40. Iron oxide minerals are added to plastics for UV resistance.
41. The mineral filler is an additive and modifier, not the main product.
42. Titanium dioxide provides great whiteness, but it is more expensive.
43. Base metal ores include bauxite (mostly gibbsite $\text{Al}(\text{OH})_3$), hematite Fe_2O_3 , and magnetite Fe_3O_4 .
44. Luster in a mineral is the color of the powder left on a plate when the mineral is scraped across it.
45. Oxide ores include uranium as uraninite and titanium as ilmenite.
46. Mineral fillers help control product costs by displacing more expensive ingredients and taking up space in a product matrix.
47. Malachite is always green while azurite is always blue
48. A mineral is heterogeneous and crystalline material is usually obtained from the ground.
49. Mica and talc are generally used in the ceramic industry.
50. Industrial minerals are any rock, mineral, or other naturally occurring material of economic value, excluding metals and energy minerals.



Total 50 marks

Allowed Time: 2 hours

Part (1) - MINERAL PROSPECTING (25 Marks)

I) Answer the following question (5 Marks):

Explain briefly how geochemical prospecting surveys can be utilized in mineral prospecting processes indicating the targeting ores - Select TWO prospecting surveys only.

II) Answer shortly FOUR ONLY of the following questions (20 Marks):

- 1) Discuss briefly the main surface signatures displayed during geological prospecting of mineral deposits in the field.
- 2) Explain, by examples, the role of self-potential geophysical techniques in detecting minerals directly and indirectly.
- 3) In radioactivity techniques for investigating mineral deposits, what are the measured parameter, units, physical property, and main causes of anomalies? Give examples of the direct and indirect applications.
- 4) Show how direct and indirect detection of mineral deposits can be encountered using resistivity geophysical techniques.
- 5) Explain how well logs can be used for locating directly and indirectly certain minerals and ores.
- 6) What are the differences between photo geological and remote sensing techniques in mineral prospecting? Summarize the advantages and disadvantages of applying remote sensing in mineral deposits prospection.

Part (2) - INDUSTRIAL MINERALS AND ROCKS (25 M)

أنظر الصفحات الأخرى وال Bubble Sheet

تمت أسئلة الجزء الأول وبالتوفيق

أ.د. جلال حامد الحباك

أ.د. عوض عبدالخالق عمران