

(PART-2)

Answer the following questions:

(10 Marks)

1. A- Write on the mechanism of the presence of porphyritic textures in volcanic and plutonic rocks?
B- Mass of basic rock has pyroxene falling in acidic melt during crystallization of biotite, what happen to rock and melt?
2. A- Define the following expressions:-
 - Solidus and liquidus curves
 - Eutectic point and eutectic lineB- Write about the role of fractional crystallization in the numerous of igneous rocks?

بالتوفيق والنجاح

ملاحظة:

الإمتحان الشفوي عقب الإمتحان النظري مباشرة في مكتب أ.د/ حسين عزيز



Diagenesis & Marine Geology (323 G)
Students: 3rd level geology students (Total marks 50)

First part: Diagenesis (25 marks)

Write in the following (25 marks):

1. Diagenesis Systems.
2. Diagenesis Stages.
3. Depositional Environments and Diagenesis.
4. The difference between Mudstone & Shale.
5. Clay Minerals Diagenesis.

Good Luck

Prof. Dr. Esmat A. Keheila

- a. The crust becomes folded and deformed.
- b. The crust floating on the Earth's mantle develops a deep root.
- c. One plate sinks below the other.
- d. Uplift occurs and results in the formation of mountain belts.

8. What is the name for the super-continent to which all of the land mass on Earth was joined approximately 600 million years ago (1 mark)

- a. Gaia
- b. Pangaea
- c. Laurasia
- d. Gondwanaland

9. Calcium carbonate oozes may be the dominant sediment type.....(1 mark)

- a. Below surface waters that have high diatom populations.
- b. Only above the carbonate compensation depth (CCD).
- c. Mainly below surface waters that are low in nutrients.
- d. In the Arctic ocean.

10. Which ocean can be found in all longitudes..... (1 mark)

- a. Pacific.
- b. Atlantic.
- c. Southern.
- d. Indian

Question No. 2. Write in detail on the following items (10 marks)

- 1. What observations did Wegener use to support the hypothesis of continental drift (2 marks).
- 2. What is a turbidite? How and where does it form (2 marks).
- 3. Discuss the concept of "Carbonate Compensation Depth" (2 marks).
- 4. Describe the process of subduction in your own words. What causes subduction to happen (2 marks).
- 5. Benthonic organisms (bottom dwellers) (2 marks)

Question No. 3. Why (اشرح السبب) (5 marks)

- 1. On the continental margins, the marine sediments are thickest (1 mark).
- 2. During convergence of plates, the oceanic plate is forced under the continental plate with the oceanic plate being pushed down into the mantle (1 mark).
- 3. At the base of the continental slope a pronounced rise of the ocean floor is recorded (1 mark).
- 4. In deeper water the solution of carbonate sediments increases rapidly (1 mark).
- 5. Most marine species inhabit the benthic environment (1 mark).

Good luck

Prof. Dr. Abdalla M. El Ayyat

Part Two: Marine Geology (25 marks)

Answer the following questions (3 questions)

Question No. 1. Choose the correct answer (10 marks)

1. The theory of continental drift was supported by what kind of evidence (1 mark)?

- a. Matching rocks and mountain ranges on different continents.
- b. Matching fossils on multiple continents.
- c. Shapes of the continents appear to fit like a jigsaw puzzle.
- d. All of the above.

2. Carbonate sediments are rare in deep sea sediments because.....(1 mark)

- a. The organisms providing shells do not live in the deep sea.
- b. The abundance of muds and clays cover the carbonate shells.
- c. The carbonate shells dissolve in deep water.
- d. The organisms do not live beyond the edge of the continental shelf.

3. According to the Theory of Plate Tectonics, new oceanic crust is formed at.....boundaries, and recycled back to the mantle at.....boundaries (1 mark).

- a. Convergent, divergent.
- b. Transform, convergent.
- c. Passive, active.
- d. Divergent, convergent.

4. The transition between the shelf and the deep seafloor is.....(1 mark)

- a. The littoral zone.
- b. The continental slope and rise.
- c. The abyssal plain.
- d. The mid-ocean ridge.

5. Underlying the unconsolidated sediments of the seafloor are.....(1 mark)

- a. Basalt pillows and basement rocks.
- b. Granite crust.
- c. Glacial deposits left from the Ice Age.
- d. Ancient remnants of continental crust.

6. Which of the following is generated in place, on the spot where we find them.....(1 mark)

- a. Terrigenous sediments.
- b. Biogenous sediments.
- c. Hydrogenous (or authigenic) sediments.
- d. Cosmogenous sediments.

7. Which of the following does NOT occur when two continental plates collide (1 mark)

b) The given figure represents _____

Era	Period	Stage	Fm.	Lithology	Sr.	Res.	Seal
Cenozoic	Oligocene		Dabas				
	Eocene		Apollonia				
Mesozoic	Upper Cretaceous	Camp-Mast	Komombo				
		Conia-Sant	A				
		Turonian	B				
			C				
			D				
			E				
	Lower Cretaceous	Cenomanian	F				
			G				
		Alpian	H				
			I				
		Aptian	J				
			K				
Paleozoic	Barremian						
	Hauterivian						
	Valanginian						
	Jurassic						

Ⓐ Abu El Gharadiq basin

Ⓑ Nile delta basin

Ⓒ Komombo basin

Ⓓ Beni Suef basin

c) Most of the modern world deltas are related to _____ type.

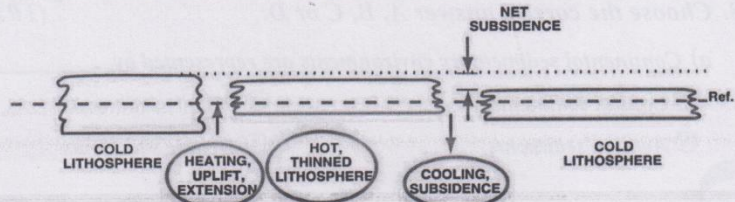
Ⓐ Tide-dominated

Ⓑ Wave-dominated

Ⓒ Mixed processes

Ⓓ Fluvial- dominated

d) Thermal way is one of the proposed mechanisms of sedimentary basin formation, which event marks the given figure?



Ⓐ Thermal way without erosion

Ⓑ Thermal way with erosion

Ⓒ Thermal way with extensional thinning of the lithosphere

Ⓓ Both A and B



Subject: Depositional Sedimentary Environments and Sedimentary Basins (G335)

Answer the following questions:

(50 Marks)

1. Write short notes on the main criteria required for the recognition of ancient sedimentary environments. (8 Marks)
2. Write in brief the main factors controlling basin formation. (9 Marks)
3. Important information's are gained from the interpretation of ancient sedimentary environments, mention these. (3 Marks)

-
4. Answer only ONE question of the following: (6 Marks)

A- Textural properties of sediments are important for the interpretation of sedimentary process and environments, write on these.

B- How are sedimentary basins formed (subsidence mechanisms)?

-
5. Define the following: (4 Marks)

- Inactive sedimentary basins
- Alluvial fans
- Cosmogenous materials
- Siliciclastic-dopminated sedimentary basin

6. Write on the economic importance of marine sediments. (5 Marks)

7. What are the subenvironments found in delta? (5 Marks)

8. Choose the correct answer A, B, C or D: (10 Marks)

a) Continental sedimentary environments are represented by _____

(A) Coastal sediments

(B) Pelagic sediments

(C) Aeolian sediments

(D) Deltaic sediments



b) The given figure represents _____

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	Eocene		Apollonia				
Mesozoic	Upper Cretaceous	Camp.-Mast.	Komom				
		Conia.-Sant.	A				
		Turonian	Abu Roash				
			B				
			C				
			D				
	Lower Cretaceous	Cenomanian	U.				
			L				
			Bahariya				
		Alpian	Kharita				
			Dahab				
			Alm El-Bay				
	Jurassic	Barremian					
		Hauterivian					
		Valanginian	Bent				
	Triassic	Egh					

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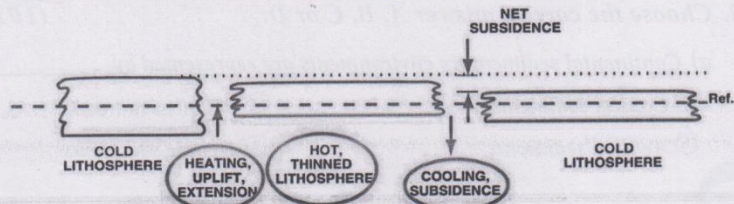
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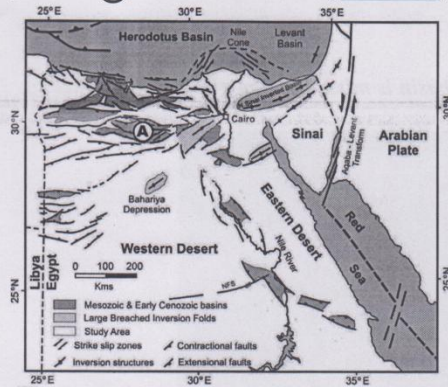
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B- How are sedimentary basins formed (subsidence mechanisms)?
-

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7. What are the subenvironments found in delta? (5 Marks)
8. Choose the correct answer A, B, C or D: (10 Marks)

- a) Continental sedimentary environments are represented by _____
- (A) Coastal sediments (B) Pelagic sediments
(C) Aeolian sediments (D) Deltaic sediments

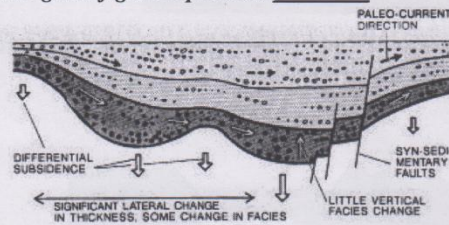


e) Letter **A** marks the location of _____ in Egypt



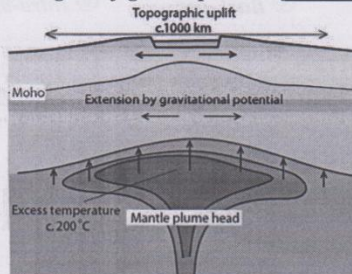
- A** Abu El Gharadiq basin **B** El Gindi basin
C Komombo basin **D** Nile Delta basin

f) The given figure represents _____



- A** Post-depositional sedimentary basin **B** Syn-depositional sedimentary basin
C Pre-depositional sedimentary basin **D** Both A and B

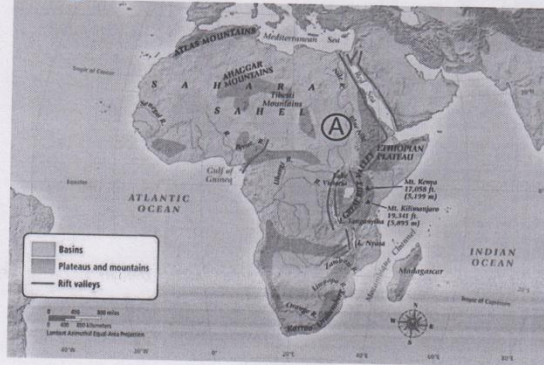
g) The given figure represents _____



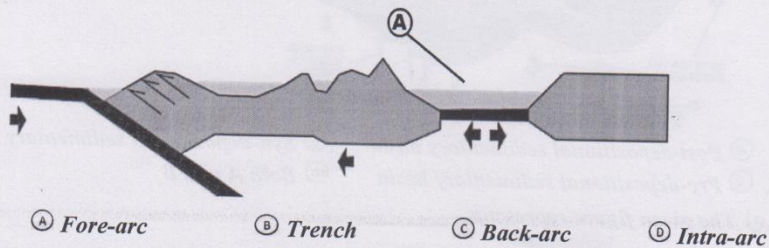
- A** Active rifting **B** Passive rifting
C Both A and B **D** Neither A nor B

c9

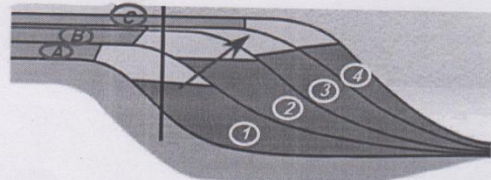
h) Which African sedimentary basin is missed on the given map marked by letter (A) ?



- (A) Congo basin (B) Sudan basin (C) Kalahari basin (D) Chad basin
i) Letter (A) in the given figure shows the location of _____ basin



j) The given figure represents _____



- (A) Delta retrogradation (B) Delta progradation
(C) Delta retrogradation- progradation (D) Delta progradation-retrogradation

Good luck

Ezzat A. Ahmed

PART II:

Q4- Define and discuss only three from the following scientific terms: (5 Marks)

- 1) Alkalinity 2) Salinity 3) Continental shelf 4) Dimorphism

Q5- Compare between the following items: (5 Marks)

- 1) The fresh water and the marine Ostracoda. (2.5 Marks)
2) The benthonic foraminifera and radiolaria. (2.5 Marks)

Q6- Write briefly on: (5 Marks)

- 1) The Conodonts. (2.5 Marks)
2) Evolution of foraminifera. (2.5 Marks)

Q7)- Mention the important orogenies which took place during the Paleozoic and Mesozoic eras and explain the main causes of every one. (5 Marks)

Q8)- Answer the following questions: (5 Marks)

1- Choose the correct answer (3 Marks)

- i) The largest supercontinent during the Permian period was known as :
a) Pangaea b) Laurentia c) Gondwanaland d) Rodinia
- ii) Which of the following terms of things found in rocks is NOT part of the Precambrian rock record?
a) Stromatolites b) shelled organisms c) algae d) bacteria
- iii) The smallest formal unit of the Chronostratigraphy is
a) Period b) Stage c) Series d) Formation
- iv) The first form of life on the Earth is
a) Cyanobacteria b) Angiosperms c) Gymnosperms d) Spones
- v) The first form of vertebrate life on the Earth is
a) Jawless Fish b) Armored Fish c) cartilage fish d) bony fish
- vi) Uppermost rocks document an episode of widespread extinction and expansion of glaciers near the south pole that we know was related to that extinction.
a) Ordovician b) cretaceous c) Cambrian d) Triassic

2) Tabulate the rock-building fossils throughout the Paleozoic Era. (2 Marks)

Examiner: Prof. Dr. Nageh A. Obaidala (Geology Department)

انتهت الأسئلة مع أطيب الأمنيات بالتوفيق



امتحان التحريرى لطلاب المستوى الثالث بقسم الجيولوجيا (جميع الشعب)
المقرر: حفريات دقيقة و جيولوجيا تاريخية (٣١٥ ج)
الفصل الأول (دور يناير) - العام الجامعى ٢٠٢٤-٢٠٢٥ م

الزمن: ثلاث ساعات

الدرجة الكلية للامتحان: ٥٠ درجة

ملحوظة هامة: الامتحان يتكون من صفتين

PART I:

Q1: Choose if the following statements are true (✓) or false (X) (10 marks; 1 mark each)

- 1- Three antapical horns characterize Peridiniacean dinoflagellates.
- 2- Spores possess openings in the form of colpi and pores.
- 3- Most dinoflagellates are mainly considered terrestrial phytoplankton.
- 4- Pollen are wind-blown, therefore they cannot be transported to deposition sites.
- 5- The view that shows the intercalary plates in Peridiniacean dinoflagellates is called the "ventral view".
- 6- Gonyaulacacean dinoflagellates increase in low salinity waters.
- 7- Not every organism that ever lived on earth preserved as a fossil.
- 8- Early diagenetic processes may affect organic-walled palynomorphs and lead to degradation.
- 9- Spores usually originate from their parent plants as monads.
- 10- The Ediacaran time is the time in Earth history where abundant organisms lived and their hard parts were fossilized.

Answer ONE ONLY of the following questions

Q2: Answer the following questions (15 marks; 5 marks each)

- 1- Write on the application of dinoflagellates in paleoecology.
- 2- Illustrate with drawings the main morphological features of pollen grains.
- 3- What are the main features of life in the Precambrian?

Q3: Write on: (15 marks; 5 marks each)

- 1- Life cycle in dinoflagellates.
- 2- Extraction methods of small palynomorphs.
- 3- Extinction hypothesis.

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

24	Salt dome will result in a gravity low anomaly		
25	Galena will result in a gravity high anomaly		
26	Upward continuation suppresses the short wavelength of gravity anomaly		
27	Localized, short wavelength gravity anomalies can originate only from shallow density inhomogeneity		
28	Gravity alone cannot distinguish between a strong density contrast at depth and a more diffuse contrast shallow		
29	Gravity acceleration of basic rocks are higher than sedimentary rocks		
30	Taking the 1st or 2nd derivative of gravity data can reveal the sense of contacts (Edges of anomalies)		
31	Gravity method can be used to locate voids		
32	Ore deposit such as galena and pyrite represent a good target for gravity survey		
33	The regional gravity anomaly reflects a long wavelength and attributed to deep-seated crustal features.		
34	The local-regional anomaly separation is conducted to gravity data to emphasize some anomalies and suppress others		
35	The local gravity anomaly reflects a short wavelength and attributed to shallow sources		
36	Air filled voids or cavities will result in a gravity low anomaly		
37	Porosity and pore fluid are probably the most important factors affecting density in the shallow subsurface		
38	Nettleton method can be used to determine density of rocks		
39	Pendulum and free-falling body methods are used to measure relative gravity		
40	Downward continuation suppresses the longest wavelength of gravity anomaly		
41	Un-weathered rocks are lower in density than weathered rocks		
42	The high pass filter in gravity is used to locate the shallow anomaly sources		
43	Base station readings are used to determine the temporal variations in gravity and to correct for drift error in readings		
44	The low pass filter in gravity is used to locate the deep anomaly sources		
45	The half-width method is used to determine the depth to gravity anomaly source		
46	The deeper the body the higher the amplitude of gravity anomaly		
47	Ambiguity in gravity interpretations arise from the problem that different geological models could produce the same gravity anomaly		
48	Rock density can be determined by Nafe-Drake curves		
49	The most disadvantage of derivative method in gravity is enhancing the noise		
50	Radial average power spectrum is a method to estimate average radius of gravity anomaly source		

Part II – Magnetic Method

Choose the correct answer: (25 marks, half mark each)

Assiut University
Faculty of Science
Department of Geology

Date: January 2025
Time allowed: 2 hours

Final Exam

Gravity and Magnetic Prospection (G 351), Total of 50 Marks

Part I – Gravity Method

Mark the following statements with True (V) or False (X): (25 marks, half mark each)

No	Statement	TRUE (V)	FALSE (X)
1	The gravity acceleration of igneous rocks is smaller than the sedimentary rock		
2	The gravity field is perpendicular to the surface of the earth whereas the magnetic field direction varies.		
3	The force of one body acting on another is given by Galileo's law of gravitation		
4	The force of attraction between two bodies is directly proportional to the square of the distance between them		
5	The Geoid is defined as a surface with unequal gravitational field.		
6	The gravity acceleration of plutonic igneous rocks is greater than the volcanic rock		
7	The typical gravity anomaly size does not vary greatly because of the very narrow range of rocks density		
8	Pendulums and falling masses are two different methods for measuring relative gravity		
9	The advantage of falling body for measuring gravity is that no drift corrections needed		
10	The gravity acceleration at the pole is smaller than that at the equator		
11	The unstable gravimeters are used for measuring absolute gravity		
12	In GRACE mission, the gravity field is measured by the accurate distance between the two satellite aircrafts		
13	The accuracy of gravity measurements in airborne survey is higher than the land survey		
14	A base station is required for drift corrections in gravity survey		
15	The latitude correction is performed using the international gravity formula		
16	The free-air effect is added if you are above sea-level and is subtracted if you are below sea-level		
17	The Bouguer effect is subtracted if you are above sea-level (+h) and added if you are below sea-level (-h).		
18	Eötvös correction is applied to gravity data when a gravimeter is mounted on a moving platform		
19	In gravity survey the station interval should be smaller than the target size		
20	The range of gravitational acceleration at the Earth's surface ranges from approximately 9.78 m/s^2 at the poles to 9.83 m/s^2 at the Equator		
21	Lower than average density bodies will cause a negative gravity anomaly.		
22	In gravity method, the deeper the body the broader the anomaly		
23	Second vertical derivative of magnetic data will define the boundaries of the target		

- C) Data is filtered incorrectly. D) The magnetometer is not calibrated.
67. The Nyquist wavelength is defined as.....
 A) Half the sample spacing. B) Twice the sample spacing.
 C) The same as the sample spacing. D) None of the above.
68. A gradiometer is defined as.....
 A) A magnetometer with no fixed spacing between sensors.
 B) A differential magnetometer with fixed small spacing between sensors.
 C) A scalar magnetometer. D) A simple magnetometer.
69. Gradients can be used to ascertain.....
 A) Only the location of anomalies. B) Anomaly depth, magnetic moment, shape, and location.
 C) The strength of the magnetic field only. D) The temperature of the magnetic source.
70. The sensitivity of a gradiometer is determined by.....
 A) The value of (dT/dr) it can measure. B) The distance to the magnetic source.
 C) The type of magnetometer used. D) The sample spacing.
71. Geomagnetic secular variation can originate from.....
 A) Only dipolar changes dominate shorter periods. B) Non-dipole changes dominate shorter periods.
 C) Constant magnetic fields. D) Only long-term changes.
72. The origin of geomagnetic secular variation can also be.....
 A) Changes of the dipolar field with longer periods. B) Random fluctuations.
 C) Only due to solar activity. D) Unrelated to magnetic fields.
73. The vertical component of the surface geomagnetic field is defined as.....
 A) Positive upwards. B) Positive downwards. C) Always zero. D) Negative.
74. Inclination of the magnetic field ranges from.....
 A) 0° to 90° . B) -90° to $+90^\circ$. C) 0° to 360° . D) -180° to $+180^\circ$.
75. The horizontal component of the surface geomagnetic field is defined as.....
 A) Positive upwards. B) Positive downwards. C) Always zero. D) Negative.
76. The geocentric axial magnetic dipole is described as.....
 A) A magnetic dipole at the surface of the Earth.
 B) A magnetic dipole at the center of the Earth aligned with the Earth's rotation axis.
 C) A magnetic dipole that varies with latitude. D) A non-existent concept.
77. Magnetic susceptibility measures.....
 A) The relative ability of a material to create local magnetization.
 B) The absolute ability of a material to create local magnetization.
 C) The strength of the magnetic field. D) The magnetization direction.
78. The purpose of mounting a magnetometer sensor on a longer staff is to.....
 A) Increase sensitivity. B) Distance surface materials. C) Measure deeper anomalies. D) Reduce costs.
79. True diurnal variations arise from.....
 A) Solar activity. B) The rotation of the Earth with respect to the sun.
 C) Magnetic storms. D) Changes in the Earth's core.
80. Micropulsations occur on a time scale of.....
 A) Hours. B) Days. C) Minutes. D) Seconds.
81. Magnetic storms are correlated with.....
 A) Climate changes. B) Sunspot activity. C) Ocean currents. D) Atmospheric pressure.
82. Secular variations become important when.....
 A) Comparing data from the same year.
 B) Surveys of adjacent or overlapping areas are carried out several years apart.
 C) Analyzing short-term variations. D) None of the above.
83. The Cretaceous Normal Superchron refers to.....
 A) A period of frequent magnetic reversals.
 B) A long period of normal geomagnetic fields devoid of reversals.
 C) A time of intense solar activity. D) A geological era.
84. The first vertical derivative in an aeromagnetic survey is equivalent to.....
 A) Observing the horizontal gradient.



First Semester, Third Level Final Examination

Time: 2hours	Total marks: 50	Gravitational and Magnetic Exploration (G351)	January, 2025
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Second Part: Magnetic Exploration (25 marks)

Answer the following questions:

Choose the correct answer from (A), (B), (C), and (D). (25 marks)

51. Magnetic fields are described as.....
 A) Non-directional and only point north. B) Directional and central.
 C) Static and Weak. D) Their directions vary with azimuth.
52. The direction of the induced magnetization in a rock is.....
 A) Perpendicular to the Earth's magnetic field. B) Random with the Earth's magnetic field.
 C) Parallel to the Earth's magnetic field. D) Opposite to the Earth's magnetic field.
53. The total magnetization of a rock is the sum of.....
 A) Only induced magnetization. B) Only remanent magnetization.
 C) Remanent and induced magnetizations. D) Primary and secondary magnetizations.
54. The Königsberger ratio (Q_n) is defined as.....
 A) The ratio of induced to remanent magnetization. B) The ratio of remanent to induced magnetization.
 C) The total magnetization of a rock. D) The magnetic susceptibility of a material.
55. In magnetic investigations of continental crustal rocks, Q_n is often.....
 A) $Q_n = 1$. B) $Q_n \gg 1$. C) $Q_n \ll 1$. D) $Q_n = 0$.
56. Total field magnetic anomaly maps record.....
 A) A global change in the magnetic field. B) Local anomalies in the direction of the Earth's main field.
 C) A permanent change in the magnetic field. D) Anomalies of the Earth's magnetic field only.
57. The magnetic permeability measures.....
 A) The ability of a material to resist magnetization. B) The ability of a material to convey a magnetic flux.
 C) The strength of the magnetic field. D) The induced magnetization.
58. Diamagnetic susceptibility is characterized as.....
 A) Weak and positive. B) Strong and positive. C) Reversible, weak, and negative. D) Irreversible and strong.
59. Paramagnetic susceptibility is.....
 A) Irreversible and strong. B) Reversible, small, and positive. C) Weak and negative. D) Strong and negative.
60. The susceptibility of an antiferromagnetic crystal is.....
 A) Strong and positive. B) Weak and positive. C) Strong and negative. D) Irreversible.
61. A common example of an antiferromagnetic mineral is.....
 A) Magnetite. B) Hematite. C) Ilmenite. D) Quartz.
62. Itabiritic rocks tend to produce.....
 A) No anomalies. B) The largest anomalies. C) The smallest anomalies. D) Only positive anomalies.
63. Felsic areas of granitic/gneissic terrain often show.....
 A) Large positive anomalies. B) A plethora of low amplitude anomalies.
 C) No anomalies. D) Only negative anomalies.
64. Dykes and sills of mafic composition often have.....
 A) Weak magnetization. B) Strong, remanent magnetization due to rapid cooling.
 C) No magnetization. D) Only induced magnetization.
65. The flux-gate magnetometer is classified as.....
 A) A scalar magnetometer. B) A vector magnetometer. C) A gradiometer. D) A simple magnetometer.
66. Aliasing of magnetic data occurs when.....
 A) Anomalies have a wavelength greater than twice the sample spacing.
 B) Anomalies have a wavelength less than twice the sample spacing.

- B) Observing the vertical gradient directly with a magnetic gradiometer.
C) Measuring total magnetic intensity. D) None of the above.
85. The depth between the magnetometer and the source affects.....
A) The strength of the magnetic field.
B) The width of the anomaly; deeper sources produce broader anomalies.
C) The type of magnetometer used. D) The magnetization of the source.
86. The same anomaly of single magnetic source could be produced by.....
A) A uniform distribution of magnetite. B) Only a peculiar distribution of magnetite.
C) All of the above. D) None of the above.
87. The magnetic poles of the Earth are defined as.....
A) Locations where the magnetic field is horizontal.
B) Locations where the inclination of the magnetic field is $\pm 90^\circ$.
C) Areas with no magnetic field. D) Locations with the strongest magnetic field.
88. Declination is defined as.....
A) The angle from magnetic north to true north.
B) The angle from geographic north to the horizontal component.
C) The angle of inclination. D) The angle of magnetic dip.
89. The magnitude of the International Geomagnetic Reference Field (IGRF) falls between..... nT
A) 1000 and 5000 B) 20000 and 70000 C) 50000 and 100000 D) 100000 and 200000
90. IGRF removal involves.....
A) Adding the measured value. B) Subtracting about 99% of the measured value.
C) Subtracting about 1% of the measured value. D) Doubling the measured value.
91. The susceptibility of most rocks reflects the abundance of.....
A) Hematite. B) Quartz. C) Magnetite. D) Ilmenite.
92. Oceanic basalts typically carry.....
A) No magnetization. B) A weak thermoremanent magnetization.
C) A strong thermoremanent magnetization. D) Only induced magnetization.
93. A gradiometer measures.....
A) The total magnetic intensity. B) The gradient at the midpoint of the sensor spacing.
C) Only the vertical component of the magnetic field. D) The horizontal component of the magnetic field.
94. Magnetic time variations, including the effects of magnetic storms, are.....
A) Irrelevant to magnetic surveys. B) Effectively removed.
C) Only observed during solar flares. D) Constant and predictable.
95. The vertical distance between the magnetic source and the magnetometer sensor is called.....
A) Source-sensor separation. B) Magnetic depth. C) Sensor spacing. D) Anomaly depth.
96. To better define the shallower anomalies, one should.....
A) Remove the regional magnetic gradient. B) Increase the sample spacing.
C) Use a scalar magnetometer. D) Ignore the regional gradient.
97. In low magnetic latitudes, the dipolar nature of compact magnetic sources leads to.....
A) EW Anomaly patterns defined by NS survey lines. B) Anomalies that are circular.
C) No significant patterns. D) Anomalies that are only defined by EW survey lines.
98. Three main classes of magnetic behavior can be distinguished based on magnetic susceptibility.....
A) Diamagnetism, paramagnetism, and superconductivity.
B) Diamagnetism, paramagnetism, and ferromagnetism.
C) Ferromagnetism, antiferromagnetism, and superconductivity.
D) Diamagnetism, antiferromagnetism and paramagnetism.
99. The analytic signal is calculated from.....
A) The total magnetic intensity. B) The horizontal and vertical gradients.
C) Only the vertical gradient. D) The average magnetic field.
100. The analytic signal enhances.....
A) The total magnetic field. B) The edges of magnetized bodies
C) The depth of magnetic sources. D) The strength of the magnetic field.

GOOD LUCK

End of questions

Assoc. Prof. Mostafa Thabet Mohammed



Principles of Petrology (G324) for 3rd level student
13-janu -2025

PART I IGNEOUS&METAMORPHIC ROCKS (Total 32 mark)

Write short notes on:

- 1-Granites family (8 Marks)
- 2-Types of porphyritic textures in volcanic rocks (8 Marks)
- 3-Gneiss and hornfels (8 Marks)
- 4-Textures of regional metamorphism (8 Marks)

PART II SEDIMENTARY ROCKS (Total 18 mark)
(Illustrate your answer by diagrams)

1-Write about **THREE** questions **ONLY** of the following: (3 mark for each question)

- 1- Different methods for measuring the particle size of clastic sedimentary rocks.
- 2- Primary structural forms of clastic sedimentary rocks.
- 3- Surface textures of clastic quartz grains
4. Petrographic classification of limestone.

II- **Complete the Following** (2 mark for each question)

- 4- Matrix is fine material which fills the among the particles, whereas, Cement is post- depositional in the among the grains and matrix.
- 5-Colloform textures produced from system by direct precipitation in the as

III- **Choose the correct answer of the following:** (1 mark for each question)

6- **Porosity is defined as:**

- a. A measure of the ease with which a fluid flows through the connecting voids of a rock
- b. A decrease in the volume of a unit of rock caused by pressures exerted by overlying rock
- c. A ratio of the volume of void space to total volume of rock, representing how much fluid a rock can contain.

7. **What is the difference between a breccia and a conglomerate?**

- a. breccias are coarse grained and conglomerates are fine grained
- b. breccias have rounded fragments and conglomerates have angular fragments
- c. breccias have angular fragments and conglomerates have rounded fragments

8- **Permeability is defined as:**

- a. A measure of the ease with which a fluid flows through the connecting voids of a rock
- b. A decrease in the volume of a unit of rock caused by pressures exerted by overlying rock
- c. A ratio of the volume of void space to total volume of rock, representing how much fluid a rock can contain.

9 . **Which of the following is the most likely way for sandstone to form?**

- a. Precipitation of sediments from seawater that has been concentrated by evaporation
- b. Compaction and cementation of sediments that have been eroded from pre-existing rocks
- c. Secretion of calcium carbonate by shelled organisms and accumulation of these shells

10. **The process not contributing to clastic rocks is**

- a. Weathering
- b. Oxidation
- c. Erosion
- d. Deposition

GOOD LUCK

Pro. Dr. Ahmed R. El Younsy

13-janu -2025

Pro. Dr. Mohamed A.El Raouf

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امتحان التحريري لطلاب المستوى الثالث بقسم الجيولوجيا (جميع الشعب)
المقرر: طباقية زمنية وكيميائية (٣١٩ ج)
الفصل الأول (دور يناير) - العام الجامعي ٢٠٢٤-٢٠٢٥ م

الزمن: ساعتان

الدرجة الكلية للامتحان: ٥٠ درجة

PART I (CHRONOSTRATIGRAPHY)

Q1: Choose if the following statements are true (✓) or false (X)

(10 marks; 1 mark each)

- 1- Chronostratigraphy deals with the organization of rocks into time units on the basis of their fossil content.
- 2- Natural phenomena such as cyclic variations in the stratigraphic record can be used to determine rock ages and improving the accuracy and resolution of time-stratigraphy.
- 3- Magnetic stratigraphy deals with rock bodies based on differences in their magnetic characters.
- 4- A chronostratigraphic unit is a time unit.
- 5- Geochronologists use cyclostratigraphy for relative and accurate timing of pre-Quaternary Earth history.
- 6- The geologic time-scale relates stratigraphy to time.
- 7- A chronostratigraphic horizon is a stratigraphic surface which is synchronous everywhere of the same age.
- 8- Fossils can be important in the recognition of lithostratigraphic units as distinctive fossil constituents.
- 9- Mass extinctions of taxa can determine stage boundaries.
- 10- The basic formal unit in magnetostratigraphy is the Taxon Range Zone.

Answer ONE ONLY of the following questions

Q2: Write shortly on:

(15 marks; 5 marks each)

- 1- Geologic periods.
- 2- The geologic time scale.
- 3- Relative and absolute age dating.

Q3: Answer the following questions

(15 marks; 7.5 marks each)

- 1- The ratification of the Zanclean Stage and of the Pliocene Series, at the base of the Trubi Formation (Italy), brings years of controversy to an end, discuss this statement.
- 2- Compare between biostratigraphic and lithostratigraphic units.

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

N.B. See Part II

7- The net effect of the influxes of black carbon, CO and CO₂ resulted from the K/T impact is:

- A. The global warming of the earth's surface
- B. The sea level fall
- C. Both
- D. None

8- Which one of the following is NOT typical of the " K/T event"

The evidence found for global wildfires in the K/T clay layer in the form of

- A. Charcoal
- B. Soot
- C. Shocked quartz
- D. (b. and c.)

9- Terrestrial spinels are different from the K/T spinels in:

- A. terrestrial spinels are highly oxidized (high Fe³⁺ content)
- B. terrestrial spinels are higher in Ni and Co contents
- C. terrestrial spinels are higher in Cr and Ti contents.

10- The high Zr/Al ratio within sediments is considered to indicate an

- A. increased productivity
- B. increased volcanic input
- C. extraterrestrial impact

11- The increase of the elements Al, Si, Ti and Zr within sediments is resulted mainly from

- A. Diagenesis
- B. oxidation
- C. weathering

12- $\delta^{34}\text{S} =$ -----

13- During precipitation, H₂¹⁸O condensates more rapidly than H₂¹⁶O

- A. True
- B. False

14- In an ocean with constant isotopic composition of the water, an increase in temperature of little more than 4°C corresponds to a decrease in $\delta^{18}\text{O}$ of about 1‰

- A. True
- B. False

15- Planktonic foraminifera have more ¹²C incorporated in their shells (more +ve $\delta^{12}\text{C}$) than the benthic components (more -ve $\delta^{12}\text{C}$)

- A. True
- B. False

16- Give possible explanations of the following geochemical and mineralogical signatures in stratigraphic record: (10 marks)

أجب في كراسة الإجابة

- A. Sharp decrease in $\delta^{18}\text{O}$ at the P/E boundary
- B. Decrease in $\delta^{13}\text{C}$ with depth of sea water
- C. Occurrence of shocked minerals at most of the K/T Boundary Sites
- D. Present of spinels and glass at the K/T boundary
- E. Write the chemical formula of: Kaolinite, Sphalerite and Orthoclase

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



First Semester Final Examination 2024/2025

Subject: Course No. 319G (II- Chemostratigraphy) Time allowed: one hour

Students: Third Year Students Date: Jan., 10 , 2025

Examiner: Prof. Dr. Mamdouh F. Soliman

الامتحان في صفتين

Write your answers in the same sheets

Select or write the correct answer for the following:

25 marks: (one mark for each, 10 marks for No. 16)

Organize your answers in a table in your answer sheet نظم أجابتك في جدول في كراسة الأجابة

1- Classify these elements into chalcophiles, lithophiles and siderophiles:

Si, Mn, S, Cu, Ir, K, Fe, Cr, Ir, Mg, Na, Ni, Au, Zn, Sb, Os, Al

Siderophiles:

Lithophiles:

Chalcophiles:

2- Which one of the following is NOT typical of " siderophile elements"

A. They are PGE

B. They are oxide

C. They are Noble metals

3- Most Asteroids are rocky objects and come from the asteroid belt whereas, most Comets are and come from

4-Pallasites are assumed to represent pieces from big planet-like bodies

A. True

B. Fals

5-Which one of the following is NOT typical of "Meteorites"

A. Most stony meteorites are made up, in part, of small glassy spheres 1-2 mm diameter

B. They are composed of dark Mg and Fe- rich silicate minerals

C. They contain some of the more volatile solar elements, such as C, H, and O, chemically combined into silicates

D. They are composed of metallic iron and Nickel

E. All of the above

f. None of the above

6-The distal ejecta consist usually of:

A. Medium- grained rock and mineral fragments or rare glassy uniformity

B. Fine- grained rock and mineral fragments or rare glassy uniformity.

C. Coarse- grained rock and mineral fragments or rare glassy uniformity

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2024/2025 First Semester, Final Examination

15 January 2025	On: Electric Prospection (G-358)	Time: 2 hours
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Answer ONLY the required questions, illustrating your answer by suitable SKETCHES wherever possible:

First Question: Write on ONLY EIGHT of the following: (40 marks)

1. Compare between vertical electrical sounding and horizontal profiling techniques.
2. Compare between self-potential and induced polarization methods.
3. Electrode configurations and arrangements in resistivity surveys.
4. Electrical resistivity properties of rocks and minerals.
5. Geoelectric Dar Zarrouk parameters.
6. Planning and designing a geophysical survey.
7. Challenges in the field and the distortion of sounding curves.
8. Types of VES curves in three- and four-layer scenarios.
9. Main applications of the Earth Resistivity method.
10. Uses and applications of the self-potential method.
11. Equipment setup and fieldwork procedures for the self-potential method.
12. Key components of resistivity measurement equipment.

Second Question: True or False: (10 marks)

1. In the Self-Potential method, potential differences are generated by natural electrochemical processes.
2. Induced polarization surveys measure the resistivity of the ground after current is applied.
3. The induced polarization method is used to detect metallic ore bodies because they have high chargeability.
4. The Schlumberger array is typically used for shallow, small-scale surveys.
5. Vertical Electrical Sounding (VES) is used to obtain a one-dimensional profile of resistivity with depth.
6. The resistivity method is not useful in mineral exploration because minerals do not affect resistivity.
7. Resistivity surveys can be affected by cultural noise, such as power lines and pipelines.
8. The horizontal profiling method is best used for investigating depth variations in the subsurface.
9. High resistivity values are typically found in areas with clay-rich soils.
10. The depth of investigation in a resistivity survey decreases as the electrode spacing is increased.

Good Luck,,,

Assoc. Prof. Rashad Sawires

G 327: Sedimentology & Depositional Systems

Part 1: Sedimentology (25 Marks)

Answer five questions only:

1. Describe briefly the texture and composition of the following rocks:
a- Calcareous oligomectic conglomerate
b- Grey wacke
(5 Marks)
2. What is the difference between heavy minerals and light minerals? Why we study the heavy minerals?
(5 Marks)
3. a- What is the difference between mudrocks and shale?
b. Mention only the names of the clay mineral groups
(5 Marks)
4. a- What are the common minerals that constitute the carbonate rocks?
b. Describe briefly the texture and composition of:
Oosparite
Pelsparite
Biomicrite
(5 Marks)
5. What are the evaporite rocks? Mention their mineralogical composition.
(5 Marks)
6. a. What are the phosphorite deposits? Write a brief account on their mineralogical composition.
(5 Marks)

أ.د. محمد احمد سليمان

2. Continental environments include all of the following except..... (1 mark)

- A. Lake beds. B. River beds. C. Glacial deposits.
D. Coral reefs. E. Alluvial fans.

3. A braided river channel..... (1 mark).

- A. Usually has a relatively narrow and deep cross section.
B. Usually is the most common type of natural channel in the world.
C. Usually is dominated by suspended load sediment types.
D. Usually is found only in arid climate regions.
E. Usually has a steeper longitudinal gradient than a meandering stream.

4. 5. Type of sand dunes formed in sandy dessert, when continuously wind changes its direction..... (1 mark).

- A. Alluvial fans. B. Mesas. C. Star dunes. D. None of above.

5. 1. Which of the following are all types of coral reef.....

- A. Fringing, barrier, atoll. B. Atoll, cay, fringing.
C. Atoll, barrier, cay. D. Fringing, barrier, cay.

Question No. 3. Discuss in detail the following items (5 marks)

- A. Three basic types of delta (1.5 marks).
B. The geological significance of an Ox-bow lakes formation (1.5 marks).
C. The three morphological elements of reef (the fore-reef, the reef flat, and the back-reef) (2 marks).

Question No. 4. Fill in the given spaces (5 marks)

- A. Two major types of delta may be differentiated, dominated deltas, and those dominated by process (1 mark).
B. accumulate in deserts and semi-deserts, as well as along coastlines and on coastal plains. These sands may cover hundreds of thousands of Km² in areas such as the Sahara and the Arabian Peninsula, where they are known as (1 mark).
C. A vertical section through the apex of a delta thus reveals a gradual vertical in grain size. At the base the grade up through delta slope silts into sands of the delta platform (1 mark).
D. Morphologically reefs have been traditionally grouped into four main types:reefs, barrier reefs,, and pinnacle or patch reefs (1 mark).
E. Recent oceanic sediments can be broadly classified to many types such as terrigenous sediments, siliceous oozes,, red clays anddeposits (1 mark).

Good Luck

Prof. Dr. Abdalla M. El Ayyat

Part Two: Sedimentary environments (25 marks)

Answer the following questions

Question No. 1. True or false (10 marks)

1. By reconstructing depositional environments geologists are able to reconstruct the climates of the past, life forms of the past and geography of the past-where the mountains, basins, large rivers and bays of the ocean were (1 mark).
2. Thick sequences of red-colored interbedded conglomerates, sands, and shales devoid of marine fossils and showing fining upward are generally believed to be deltaic in origin (1 mark).
3. Calcareous oozes are well-developed in Polar Regions. This is due to the low temperature of the bottom water which causes the accumulation of aragonite and calcite at faster rates than in the more equable equatorial oceans (1 mark).
4. Alluvial environment is an example of a shoreline/transitional environment (1 mark).
5. Larger grain sizes like gravels and sands tend to show a calm energy environment (1 mark).
6. A meandering river system has a unidirectional current flow; marine tidal channels have bidirectional but Aeolian environment has poly-directional current flow (1mark).
7. Trace fossils are good environmental indicators because they are in situ features and they are not transported (1 mark).
8. The over-all shape of a sedimentary facies is a function of pre-depositional topography, the geomorphology of the depositional environment and its post-depositional history (1mark).
9. The lateral migration of a meandering channel erodes the inner convex bank, scours the river bed, and deposits sediment on the outer concave bank as point bar deposits consisting primarily of massive sandstones (1 mark).
10. Braided channels are normally associated with low-gradient slopes, coarse, often gravelly, sediment, and steady discharge. Meandering channels are normally associated with fine-grained sediment, steep gradient and erratic discharge (1mark).

Question No. 2. Choose the correct answer (5 marks)

1. Which of the following features in a sedimentary rock can be used to interpret its depositional environment..... (1mark).
- | | |
|---|----------------------|
| A. Sedimentary structures. | B. Types of fossils. |
| C. The types of minerals. | |
| D. The size, shape and surface texture of the sedimentary grains. | |
| E. All of the above features. | F. Both (b) and (d). |

11. The difference between quartz-syenite and syeno-granite is in abundant of ____ (Comment)
 A) quartz only B) alkali feldspar only
 C) plagioclase only D) alkali feldspar and plagioclase
12. Essential minerals in granite are ____ (Comment)
 A) quartz - alkali feldspar - plagioclase
 B) quartz - alkali feldspar - biotite
 C) alkali feldspar - muscovite - plagioclase
 D) plagioclase-hornblende-biotite-alkali feldspar
13. What is the difference between plagioclase type in granite and gabbro? (Comment)
 A) grain size B) chemical composition C) shape of crystal D) texture
14. Felsic => Intermediate => Mafic
 Which of the following properties increases in the direction of the arrows in the sentence above? (Comment)
 A) silica content B) potassium content
 C) melting temperature D) viscosity
15. During crystallization of a melt plagioclase become richer in ____ (Comment)
 A) potassium B) sodium C) calcium D) alumina
16. Which of the following minerals is the most abundant mineral in ultramafic rocks? (Comment)
 A) amphibole B) olivine C) sodium plagioclase D) quartz
17. A porphyritic igneous rock contains phenocrysts of olivine and calcium-rich plagioclase in an aphanitic groundmass. This is a ____? (Comment)
 A) andesite porphyry B) gabbro porphyry
 C) basalt porphyry D) rhyolite porphyry
18. Alkali feldspar in granite represents by ____ (Comment)
 A) sanidine B) anorthoclase C) orthoclase D) orthoclase and microcline
19. What is the effect of water on melting? (Comment)
 A) water raises the melting temperature of a rock
 B) water lowers the melting temperature of a rock
 C) water does not change the melting temperature of a rock
 D) this depends on how much water is present
20. Two igneous rocks having the same chemical composition but different texture will have ____ (Comment)
 A) same name B) different name
 C) different cooling history D) no relation in between

First semester exam in igneous rocks (333G)
Students: 3rd year geology

(PART-1)

Shade the correct answer A, B, C or D (two marks for each): (40 Marks)

1. Batholiths differ from stocks in _____ (Comment)
A) Chemical composition B) Grain size C) Size D) Mineral composition
2. The discontinuous branch of Bowen's reaction series consists of minerals with _____ structures. (Comment)
A) isolated tetrahedral B) single chains
C) double chains D) all of the above
3. According to Bowen's reaction series, which of the following pairs of phases are likely to be incompatible? (Comment)
A) quartz and alkali feldspar B) Ca-Plagioclase and olivine
C) quartz and olivine D) Na-plagioclase and amphibole
4. The continental crust is most like _____ (Comment)
A) granite B) rhyolite C) basalt D) gabbro
5. Which of these minerals is commonly found in both mafic and felsic rocks? (Comment)
A) quartz B) alkali feldspar
C) plagioclase feldspar D) olivine
6. During crystallization of a magma the plagioclase feldspar _____ (Comment)
A) is replaced by quartz B) is replaced by pyroxene
C) becomes richer in calcium D) becomes richer in sodium
7. The opposite of mushroom shape structure is called _____ (Comment)
A) laccolith B) lopolith C) phacolith D) stock
8. Corona texture represent a sequence of reaction from _____ (Comment)
A) olivine + pyroxene + hornblende B) olivine + hornblende + biotite
C) pyroxene + hornblende + biotite D) all of these
9. Antiperthite is an intergrowth of _____ (Comment)
A) alkali feldspar in plagioclase B) quartz in alkali feldspar
C) plagioclase in alkali feldspar D) quartz in plagioclase
10. During fractional crystallization, this process is due to _____ (Comment)
A) density differences B) filter pressing C) tectonic movement D) all of these

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✓
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(PART-2)

Answer the following questions:

(10 Marks)

1. A- Write on the mechanism of the presence of porphyritic textures in volcanic and plutonic rocks?
B- Mass of basic rock has pyroxene falling in acidic melt during crystallization of biotite, what happen to rock and melt?
2. A- Define the following expressions:-
 - Solidus and liquidus curves
 - Eutectic point and eutectic lineB- Write about the role of fractional crystallization in the numerous of igneous rocks?

بالتوفيق والنجاح

ملاحظة:

الإمتحان الشفوي عقب الإمتحان النظري مباشرة في مكتب أ.د/ حسين عزيز

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First semester exam in igneous rocks (333G)

Students: 3rd year geology

(PART-1)

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A) density differences B) filter pressing C) tectonic movement D) all of these

2. On a listric fault the hanging-wall block rotates around an axis that is
 a- parallel to the fault surface
 b- perpendicular to the fault surface
 c- oblique to the fault surface (1 mark)
3. is a term used to indicate the direction of movement and rotation that occurred during deformation
Vergence - Simple shear - Rake - Enveloping surface (1 mark)
- 4- In similar folds (1 mark)
 a- maintain constant layer thickness across the folded surface.
 b- the layer thickness parallel to the axial surface remains constant.
 c- inter-limb angles are equal.
- 5- The angle between fold limbs in the profile plane is called the (1 mark)
 interlimb angle - true dip angle - vergence angle
- 6- In faulting, the horizontal component of dip separation is called..... (1 mark)
 Throw - Heave - dip slip
- II. Salt diapirs are considered one of the main structural styles of high geologic importance; explain their mode of formation, the associated geologic structures and their economic importance. (9 MARKS)

ANSWER ONLY FOUR OF THE FOLLOWING QUESTIONS: (20 MARKS)

- III. Write short notes on field criteria of faults. (5 marks)
- IV- Define and illustrate by drawings:
 Overturned folds - Monoclines - Listric faults -
 Strike Oblique slip normal fault - Similar folds (5 marks)
- V. Using suitable diagrams, explain the Anderson's theory of stress distribution and faulting. (5 marks)
- VI. Write on three types of classification of geologic structures. (5 marks)
- VII. Compare between direct and indirect folding (5 marks)

GOOD LUCK

Prof. Dr. Moustafa M. Youssef

امتحان طلاب المستوى الثالث (ساعات معتمدة)
مقرر (340 ج) ميكانيكا الصخور و جيولوجيا تركيبية

الزمن : 3 ساعات

الدرجة الكلية (50 درجة)

يناير 2025

PART I: ROCK MECHANICS (15 marks)

I) What are the differences between the lithostatic pressure and directed pressure? (6 Marks)

II) Discuss how the confining pressure controlling the behavior of rock. (4 Marks)

III) Choose the correct answer (5 Marks)

1-describes a series of incremental strain events .			
A- Finite strain	B- Strain Path	C- Incremental Strain	D- none of them
2- What type of forces dominates at divergent plate margins?			
A. tensional forces	B. shearing forces	C. compressive forces	D. all of them
3- is the property of materials that exhibit both viscous and elastic characteristics when undergoing deformation.			
A- Viscoplasticity	B- Viscoelasticity	C- Plasticity	D- all of them
4- Adeformation path is one in which the principal strain axes before and after strain coincide.			
A- coaxial	B- Non coaxial	C- Simple shear	D- Rotational
5- An example of body force			
A- weight of overlying material	B- displacement loading	C- mechanical disturbance of rock	D- electromagnetic

Good Luck.....

Dr. Hassan Abbas

PART II: STRUCTURAL GEOLOGY (35 marks)

ANSWER THE FOLLOWING TWO QUESTIONS:

Try to Illustrate your answers with suitable drawings when possible

وضح اجابتك بالرسم كلما أمكن

I. Choose the correct answer for the following statements, and then rewrite in your answer paper (6 MARKS)

1. is a fault rock consisting of loose or loosely bound angular rock fragments often in a gouge matrix. (1 mark)

Mylonite

Fault breccias

Pseudotachylite

بأقي الأسئلة في الصفحة التالية

9. Which of the following combinations should favor faulting rather than folding?

- High temperature and low confining pressure
- Low confining pressure and low temperature
- High confining pressure and low temperature
- High temperature and high confining pressure

10. Drag folds Occur:

- Within the competent beds.
- Within the incompetent beds are overlain by competent beds.
- When vertical stresses act on horizontal beds.

11. What behaviors are typical of rocks that are deeply buried?

- Brittle and elastic.
- Ductile and elastic.
- Ductile and plastic.

III- Compare between **THREE ONLY**:

(12 marks)

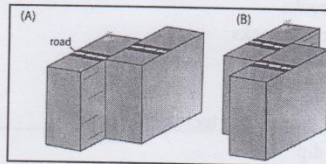
- Dilation and distortion.
- Different kinds of unconformities.
- Parasitic folds and kink bands.
- Angle of Dip and angle of Vergence

IV- What kinds of the illustrated faults?

(2 marks)

16. (A)

17. (B)



V. 18. Complete the block (below).

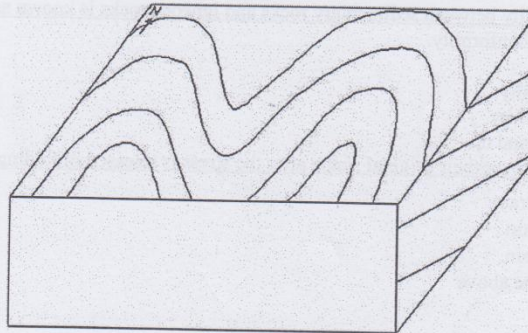
(5 marks)

19. Number the beds from oldest to youngest (1 being Oldest).

20. Indicate the axial plane and fold axis with appropriate symbols in the map view and cross-section face of the block.

21. Draw strike and symbols on the map view.

22. What is the name of this structure?



GOOD LUCK



امتحان طلاب المستوى الثالث (كيمياء وجيولوجيا)
مقرر (٣٤٥ ج) مبادئ الجيولوجيا التركيبية

الزمن : ٢ ساعة

٩ يناير ٢٠٢٥ م

PRINCIPALS OF STRUCTURAL GEOLOGY

(50 marks)

Try to illustrate your answers with suitable drawings when possible

i. Briefly answer TWO ONLY of the following questions:

(15marks)

1. What is the difference between pure shear and simple shear?
2. What is the difference between fault and Joint and how do you differentiate in field and geological map?
3. Which factors control ductile and brittle deformation in rocks?

II- Choose the correct answer for the following statements and Then rewrite in your answer paper.

(16 marks)

4. Stratification can be seen widely in which of the following rocks?
 - a) Igneous rocks
 - b) Metamorphic rocks
 - c) Sedimentary rocks
 - d) Fossil rocks
5. The dip which involves tectonic forces is
 - a) Primary dip
 - b) Secondary dip
 - c) Local and Regional dip
 - d) No dip involves tectonic forces
6. The dip of a layer measured in the direction that is at the right angle to strike is.....
 - a) True dip
 - b) Apparent dip
 - c) Straight dip
 - d) Normal dip
7. An unconformity between sedimentary rocks and igneous rocks is known as.....
 - a. Angular unconformity.
 - b. Hiatus.
 - c. Disconformity.
 - d. Nonconformity.
 - e. Answers c and d.
8. Rock units recover their original shape after the stress is released in folding.
 - a. Fracture strain.
 - b. Plastic strain.
 - c. Elastic strain.
 - d. None of the above