جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريرى لطلاب المستوى الثالث بقسم الجيولوجيا (جميع الشعب)
المقرر: حفريات دقيقة وجيولوجيا تاريخية (٣١٥ ج)
الفصل الأول (دور يناير) - العام الجامعى ٢٠٢٣-٢٠٢٤م

الدرجة الكلية للأمتحان: ٥٠ درجة — الزمن: ثلاث ساعات

Q1: Shade (T) for True statements or (F) for False statements (15 marks; 1 mark each)

1- Spores possess pores and colpi but pollen grains possess only colpi.
2- Ordinary and scanning electron microscopes can be used to study external structures of palynomorphs.
3- Of the main primary producers of seas and oceans are the planktonic foraminifera and dinoflagellates.
4- Dinoflagellates are considered marine zooplankton.
5- Pollen grains are wind-blown and can be transported to a wide range of sedimentary environments.
6- Historical geology is interested in the study of past events on a regional scale.
7- Stable carbon isotope composition of plant tissues may reflect isotopic composition of atmospheric CO_2.
8- Two antapical hons characterize Gonyaulacacean dinoflagellate cysts.
9- The end of a process which is in contact with the dinoflagellate cyst body is called the proximal end.
10- Peridinioid cysts increase in low salinity waters.
11- Pollen grains are aquatic palynomorphs that possess flagella.
12- Several palynomorphs can share similar ornamentations types and many of them can be completely smooth without any ornaments.
13- The Proterozoic is a time period in the Earth history where abundant organisms lived and fossilized.
14- Early diagenetic processes can cause selective preservation of organic-walled dinoflagellates.
15- Spores and pollen originated from their parent plants in the form of groups (e.g. tetrads.

Q2: Shade the correct answer; A, B, C or D (10 marks; 1 mark each)

16- The Y mark on the proximal face of a spore termed the ……
A- tetrad mark B- proximal ornament
C- distal theckening D- equatorial girdle

17- Palynology is interested in the study of ……..
A- calcareous microfossils B- siliceous microfossils
C- organic microfossils D- all of them

18- The exine of a spore is ……..
A- tectate B- columellate
C- tectate-columellate D- none of these

19- Relative abundance datasets in dinoflagellates may result in ..... interpretation of the environment.

A- convenient B- inconvenient C- relevant D- direct

20- In figure 1a below the process distal end is called .....

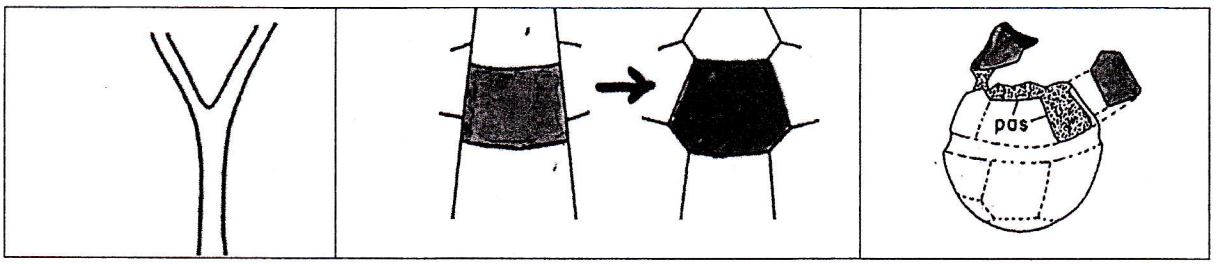
A- bifurcate B- bifid C- branched D- aculeate

21- In figure 1b, the shadowed two dinocyst plates are of similar .....

A- geometry B- plate shape C- orientation D- topology

22- In figure 1c below, the archeopyle type is .....

A- combination B- apical C- precingular D- intercalary



(1a) **(1b)** **(1c)**

23- The fossil record is very incomplete due to several reasons, one of them is the .....

A- bacterial decay B- evolution C- structural setting D- wind deflation

24- The Ediacaran faunas appeared just before the beginning of the .....

A- Late Jurassic Epoch B- Maastrichtian Age

C- Cambrian Period D- Paleozoic Era

25- The microfossil associations can be used in ..... applications.

A- biostratigraphic B- paleoenvironmental

C- paleoclimatic D- all of them

Q3: Shade the correct answer; A, B, C or D (25 marks; 1 mark each)

26- Diatom is a general term used to describe ..... -like protists.

A- algae B- fungi C- animal D- bacteria

27- The shell of a coccolith is made of .....

A- Silica B- calcium carbonate

C- calcium sulfate. D- none of these

28- ..... is (are) classified under Kingdom Protista

A- Nannofossils B- Protozoa C- Diatoms D- all of these

29- Conodonts are .....

A- an extinct group of fish

B- an extinct group of Sponges

C- an extinct Chordates that are very useful index fossils

D- the earliest group of Chordates know from the fossil record

30- Which of the following statements is true?

A- Shell of microfossils usually contain organic as well as inorganic materials.

B- Jellyfish can become fossils as their body contains hard parts.

C- Every organism that dies becomes a fossil D- None of these

31- The wall structure of benthonic foraminifera is made of .....
A- agglutinated B- calcareous.
C- siliceous D- all of these

32- Which of the following is NOT true for the Planktonic foraminifera?
A- Paleo-environmental indicator
B- Paleo-pathymetery indicator
C- Paleo-oceanography indicator
D- Paleo-climte indicator

33- The shell of a fresh water ostracods is made of .....
A- chitinous B- calcium carbonate C- calcium sulfate D- Silica

34- The pH of the normal sea water is.....
A- >7 B- <7 D- =7 C- none of these

35- The hypersaline water is about..... salts.
A- 57 ‰ B- 35 ‰ D- 30 ‰ C- 0.5 ‰

36- Dissolved oxygen depends on .....
A- ocean circulation B- fluxes of organic matter to the sea floor
C- depth D-all of these

37- Stagnant water contains .....
A- low oxygen B- high oxygen
C- moderate oxygen D- all of these

38- Fusulinida (rock-forming elements) is the most important and complex of the.....
A- Late Paleozoic B- Late Mesozoic
C- Late Cenozoic D- Quaternary

39- Conodonts are found in ..... sediments.
A- marine B- fresh water C- terrestrial D- all of these

40- The African Plate belongs to the supercontinent .....
A- Pangaea B- Laurentia C- Gondwanaland D- Rodinia

41- The first form of vertebrate life on the Earth.
A- Jawless Fish B- Armored Fish
C- Cartilage Fish D- Bony Fish

42- The collision of Laurentia with Baltica caused the ..... Orogeny during the Devonian.
A- Laramide B- Hercynian
C- Ural D- Caledonian

43- What marks the base of the Cambrian System?
A- The first Cephalopoda fossil B- the first Ediacaran fossil
B- the first trace fossil C- the first Trilobite fossil

44- At what latitude was Siberia located during the Cambrian Period?
A- Equator B- North Pole C- South Pole D- none of these

45- What modern sea is a remnant of the Tethys?
A- Arabian Sea B- Red Sea
C- Mediterranean Sea D- North Sea

46- What features were formed in the Sierra Nevadan Orogeny?

A- Deep basins domes and monoclinal folds.

B- Large granitic plutons.

C- Normal faults.

D- Reverse faults.

47- What does the "Paleocene Series" refer to?

A- A scheme for dating rocks. B- A scheme for identifying rocks.

C- the rocks formed during Paleocene Epoch.

D- The time interval called the Paleocene.

48- What is the age of most of the rocks of the continental shields?

A- Mesozoic B- Cenozoic C- Paleozoic D- Precambrian

49- During which eon or era did the prokaryotic cell first appear?

A- Archean B- Proterozoic C-Mesozoic D- Paleozoic

50- Which periods of the Paleozoic have evidence of extensive glaciation?

A- Devonian and Permian B- Ordovician and Silurian

C- Ordovician and Devonian D- Cambrian and Devonian

إنتهت الأسئلة مع أطيب الأمنيات بالتوفيق

Examiners: *Prof. Dr. Magdy S. Mahmoud; Prof. Dr. Nageh A. Obaidala*
Prof. Dr. Amr S. Deaf (Geology Department)

Geology Department
Faculty of Science
Assiut university

Final Exam of
Environmental Geophysics (353G)

Jan. 2024 **(50 mark)** *Time: 2 h*

(الاجابه في نفس الورقه)

Answer the Following Questions

First Question (40 Mark)

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

1- In horizontal reflector ,the receiver (geophone) records the arrival and assumes that the reflection came from straight below ( )
2- Ray paths: Lines that show the direction that the seismic wave is propagating and are perpendicular to the wave front ( )
3- The lack of seismic-velocity contrasts between geologic units or hydrologic boundaries lead to prevent successful completion of a seismic-refraction survey ( )
4- A hidden-layer problem is encountered when seismic-refraction surveys are conducted in areas where the surface of the ground is frozen. ( )
5- For detailed shallow reflection the typical natural frequency is 100 Hz
6- Acoustical contrasts occur as variations in either mass density or seismic velocity.( )
7- For subsurface synclines, a bow tie pattern for synclines with multiples near the synclines margins ( )
8- Discontinuous reflectors produce diffracted waves ( )
9- Similar rocks have a wide range in resistivities depending on water content
10- A thick clay layer separating two aquifers usually can be detected easily on an electric sounding curve
11- Migration intended to deal with dipping interfaces ( )
12- The aim of resistivity surveys is to delineate vertical and horizontal boundaries with electrical contrasts.
13- The electrical anisotropy is of interest to the environmental and engineering geophysicists
14- To image lateral and vertical changes, electrical imaging is used
15- Lithology changes do not necessarily correspond to a resistivity change
16- Equivalence: several models produce the same results
17- Reflections may not come from directly below the source ( )
18- An unmigrated point source produces a hyperbolic pattern ( )
19- Discontinuous reflectors produce refracted waves ( )
20- Normal Moveout is the later time of arrival of the refracted rays at receivers offset from the source for a horizontal refractor ( )

Second Question (10 Marks)

a) How is GPR similar/different from seismic reflection in the following way

- Transmitter/Receiver Vs. Geophones
- Source Wave Properties
- Causes a Reflection

b) Define Blind zone of refraction survey with drawing.

Answer Sheet

Answer the First Question: Answer (T) for true sentences or (F) for false sentences (Two mark each).

1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

Answer the Second Question (10 marks)

Assiut University **Date: January, 2024**

Faculty of science **Time allowed: 2 hours**

Geology Department

First semester final exam in igneous rocks (333G)

Students: 3nd year geology

Shade the correct answer A, B, C or D (two marks for each): ..... Comment (50 Marks)

1. Submarine basaltic lava usually present as _____ lava flow.
   A) Pillow B) Blocky C) pahoehoe D) Aa
   .....
   .....
2. What type of igneous rock would contain 10 mm long plagioclase crystals surrounded by 0.5 mm long crystals?
   A) Porphyry B) Obsidian C) Phaneritic D) Aphanitic
   .....
   .....
3. Two igneous rocks having the same chemical composition but different texture will have _____
   A) same name B) different name
   C) different cooling history D) no relation in between
   .....
   .....
4. During fractional crystallization, this process is due to _____
   A) density differences B) filter pressing C) tectonic movement D) all of these
   .....
   .....
5. The difference between syeno-granite and monzo-granite is in abundant of _____
   A) quartz only B) alkali feldspar only
   C) plagioclase only D) alkali feldspar and plagioclase
   .....
   .....
6. What is the difference between plagioclase type in granite and gabbro?
   A) Grain size B) Chemical composition C) Shape of crystal D) Texture
   .....
   .....
7. What type of silicate minerals on the discontinuous side of the reaction series crystallize at the highest temperatures?
   A) Sheet silicates B) Single chain silicates
   C) Isolated tetrahedral silicates D) Framework silicates
   .....
   .....

8. Alkali feldspars in granite represents by _____
   A) Sanidine B) Anorthoclase C) Orthoclase D) Orthoclase and microcline

9. Most igneous rocks contain SiO_2 by weight _____.
   A) less than 40% B) between 40% and 70%
   C) between 70% and 90% D) greater than 90%

10. A porphyritic igneous rock contains phenocrysts of olivine and calcium-rich plagioclase in an aphanitic groundmass. This is a _____?
   A) andesite porphyry B) gabbro porphyry
   C) basalt porphyry D) rhyolite porphyry

11. During crystallization of magma the plagioclase feldspar _____
   A) is replaced by quartz B) is replaced by pyroxene
   C) becomes richer in calcium D) becomes richer in sodium

12. Rock body made from slow-moving magma and forms a mushroom shape_____.
   A) extrusive B) laccolith C) batholith D) pluton

13. Holocrystalline texture is present in _____
   A) basalt B) granite C) pitchstone D) dunite

14. What are the two conditions believed to be required for the formation of igneous rocks?
   A) low temperature and molten state
   B) crystallized state and moderate temperature
   C) molten state and moderate temperature
   D) molten state and very high temperature

15. Which of the following statements is false?
   A) mafic magmas are more viscous than felsic magmas
   B) mafic magmas are hotter than felsic magmas
   C) mafic magmas contain more calcium than felsic magmas
   D) mafic magmas contain less silicon than felsic magmas

16. The relation between the thickness of oceanic crust and continental crust _____
A) oceanic crust less than continental crust B) the same
C) more than D) sometimes different

.....

.....

17. Directive texture present in _____
A) predotite B) pyroxenite C) rhyolite D) trachyte

.....

.....

18. The dark minerals are chemically rich in _____
A) Fe, Mg B) Fe, Si C) Mg, Al D) Mg, Ca

.....

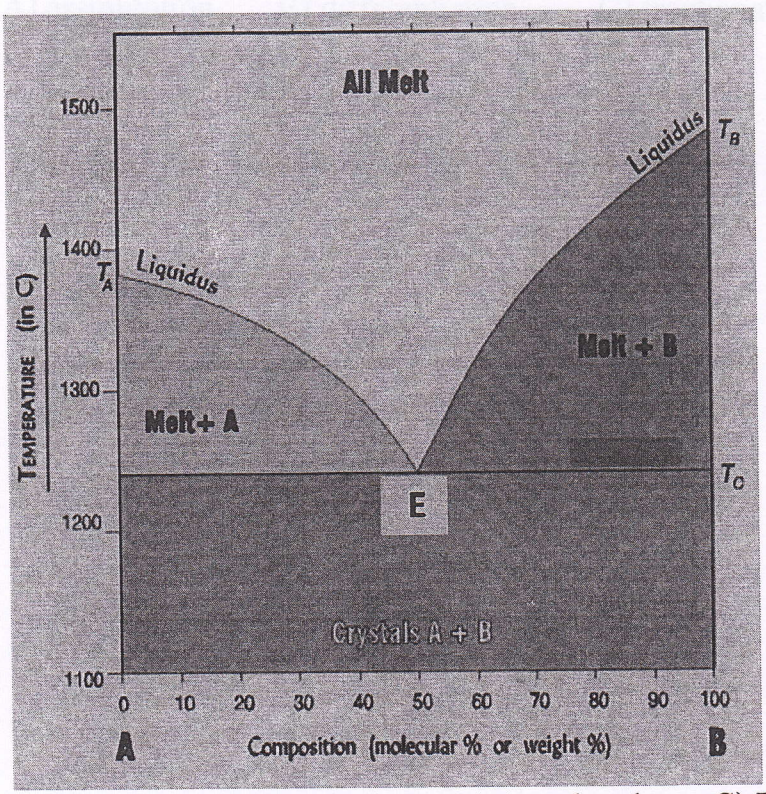
.....

19. Olivine and pyroxene are immiscible due to _____
A) different in composition B) different in structure
C) different in crystallization stage D) different in crystal form

.....

.....

20. At the eutectic point E _____



A) all three phases can exist B) A and melt C) B and melt D) None

.....

.....

21. The process that responsible for forming the carbonatite rocks _____
A) fractional crystallization B) assimilation
C) liquid immiscibility D) gaseous transfer

.....

.....

22. Phonolite is the equivalent to intrusive rock _____
A) syenite B) diorite C) granite D) nepheline syenite

.....

.....

23. The percentage of olivine in both predotite and dunite _____
A) >20,80% B) >10,90% C) >40,90% D) >40,60%

.....

.....

24. Crystallization of magma affected by several factors _____
A) rate of cooling B) composition of magma
C) volatile component D) All of these

.....

.....

25. Primary magma evolve to parent magma by _____
A) assimilation B) differentiation C) fractionation D) magma mixing

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بالتوفيق والنجاح

Assiut University
Faculty of Science
Department of Geology

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

2023/2024 First Semester, Final Examination

20 January 2024 | **Part I: Earthquake Seismology (G-350)** | Time: 2 hours

Answer the following questions:

First Question: Choose the correct answer: **(20 marks; one mark each)**

1. **Which of the following describes the buildup and release of stress during an earthquake?**
   a) the Modified Mercalli Scale
   b) the elastic rebound theory
   c) the principle of superposition
   d) the travel time difference

2. **Which of the following sequences correctly lists the seismic wave arrivals from first to last?**
   a) P-waves ... S-waves .... Surface waves
   b) Surface waves ... P-waves .... S-waves
   c) P-waves ... Surface waves ... S-waves
   d) S-waves ... P-waves .... Surface waves

3. **There are three types of boundaries: _____ where plates move apart from each other, _____ where plates move toward each other, and _____ where plates slide alongside each other.**
   a) divergent…convergent…transform
   b) transform…divergent…convergent
   c) convergent…transform…divergent
   d) divergent...transform...convergent

4. **An example of how local soil conditions can greatly influence local intensity is given by catastrophic damage of _____.**
   a) 1981 (M 5.3) Aswan earthquake
   b) 1995 (M 6.9) Kobe (Japan) earthquake
   c) 1985 (M 8.1) Mexico City earthquake
   d) 2004 (M 9.1) Sumatra earthquake

5. **The boundary between the crust and the mantle is mostly chemical. This boundary is referred to as the _____**
   a) Gutenberg discontinuity
   b) Lehman discontinuity
   c) Mohorovičić discontinuity
   d) None of them

6. **We record ground shaking with an instrument called a _____, and the instrument makes a recording on a device called a _____ mostly these days with digital computers. The recording itself is called a _____.**
   a) seismometer...seismograph...seismogram
   b) seismograph...seismogram...seismometer
   c) seismogram...seismometer...seismograph
   d) seismometer...seismogram...seismograph

7. **_____ refers to the estimation of seismic hazard and risk, as well as the construction of aseismic buildings.**
   a) Observational Seismology
   b) Physical Seismology
   c) Engineering Seismology
   d) Explorational Seismology

8. **Which of the following can trigger a tsunami?**
   a) undersea earthquakes
   b) undersea landslides
   c) the eruption of an oceanic volcano
   d) all of these

9. **Earthquake A has a Richter magnitude of 7.0 as compared with earthquake B's 6. The amount of ground motion is one measure of earthquake intensity.**
   a) A is 10X more intense than B
   b) A is 1000 more intense than B
   c) B is 0.01X as intense than A
   d) A is 100 more intense than B

10. **Which of the following statements is false?**
    a) Most earthquakes occur at plate boundaries
    b) The time and location of most major earthquakes can be predicted several days in advance
    c) Earthquakes can be caused by normal, reverse, and strike-slip faulting
    d) P-waves travel faster than both S-waves and Surface waves

11. **How do rock particles move during the passage of an S-wave through the rock?**
    a) perpendicular to the direction of wave travel
    b) in a rolling circular motion
    c) in a rolling elliptical motion
    d) back and forth parallel to the direction of wave travel

12. **There are many different types of earthquakes. The most common are _____. T occur when rocks in the Earth's crust break due to geological forces.**
a) tectonic earthquakes
b) volcanic earthquakes
c) collapse earthquakes
d) explosion earthquakes

13. **Which of the following statements best describes the state of earthquake prediction?**
a) scientists can accurately predict the time and location of almost all earthquakes
b) scientists can accurately predict the time and location of about 50% of all earthquakes
c) scientists can accurately predict when an earthquake will occur, but not where
d) scientists can characterize the seismic risk of an area, but cannot yet accurately predict most earthquakes

14. **Although _____ was the strongest one in Egypt, it was _____ that left the deepest imprint on everyone.**
a) the 1995 (M 7.2) Gulf of Aqaba earthquake … the 1992 (M 5.9) Cairo event
b) the 1995 (M 5.9) Gulf of Aqaba earthquake … the 1992 (M 7.2) Cairo event
c) the 1969 (M 6.9) Shedwan earthquake … the 1992 (M 5.9) Gulf of Aqaba event
d) The 1981 (M 5.3) Aswan earthquake … the 1995 (M 6.9) Shedwan event

15. **A 7.2 earthquake releases about _____ more energy than a 6.2 earthquake.**
a) 23 times
b) 32 times
c) 10 times
d) 2 times

16. **At convergent plate boundaries where oceanic and continental crust meet:**
a) no associated volcanism occurs
b) oceanic crust is subducted
c) continental crust is subducted
d) oceanic crust is created

17. **An earthquake will send out P-waves over the entire Globe, except for an area _____ of arc from the earthquake. This is called the P-wave shadow zone.**
a) between 103° and 124°
b) between 103° and 142°
c) between 124° and 130°
d) between 130° and 142°

18. **Why do some people die in some earthquakes more than others? Because of:**
a) the power (magnitude) of the earthquake
b) the level of development of the country
c) the population density
d) all of them

19. **Long-term forecasting of earthquakes is based mainly on the knowledge of when and where earthquakes have occurred in the past. It may include:**
a) paleoseismological evidence
b) development of seismic hazard maps
c) identification of seismic gaps
d) all of them

20. **How often do magnitude 8.0 earthquakes occur?**
a) about 5 to 10 times per year
b) about once a year
c) about every 5 to 10 years
d) about every 50 to 100 years

Second Question: True or False: **(5 marks; one mark each)**

21. Scientists use triangulation to find the epicenter of an earthquake. When seismic data is collected from at least three different locations, it can be used to determine the epicenter by where it intersects. ( )

22. The term "seismicity" is used to describe the geographic distribution of earthquakes and their characteristics such as their foci, magnitudes, occurrences over time, mechanisms, and the damage produced by them. ( )

23. The effect of an earthquake on the Earth's surface is called the magnitude. Its scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally destruction. ( )

24. In Egypt, the seismic record is mainly divided into two main periods: the historical period (before the year 1900), and the instrumental one (from 1900 until the present). ( )

25. The chief sources of instrumental earthquake data in Egypt are inscriptions, papyri, paintings, diaries, diplomatic records, and archeological evidence provided by temples and monuments. ( )

Good Luck,,,

Assoc. Prof. Rashad Sawires

University

Faculty of Science

Geology Department

جامعة أسيوط

كلية العلوم

قسم الجيولوجيا

First Semester, Third Level Final Examination

Time: 2hours	Total marks: 50	Seismic Exploration and Earthquake Seismology (G350)	January, 2023

Second Part: Seismic Exploration (25 marks)

Answer the following questions:

1. Choose the correct answer from **(a), (b), and (c).** (10 marks)

1) ..... modulus corresponds to resistance to shear and called as rigidity.
(a) Shear (b) Bulk (c) Young

2) The less compressible a material is, the greater its ..... .
(a) both S-wave and P-wave velocities (b) S-wave velocity (c) P-wave velocity

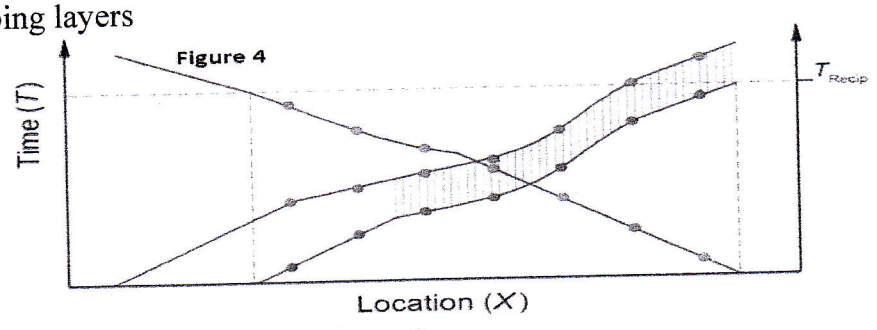
3) Wavefront normal is an arrow ..... to the wave front, indicating the direction of travel at that point on the wavefront.
(a) perpendicular (b) parallel (c) with minimum angle of incidence

4) ..... principle states that every point on a wavefront can be thought of as a new point source for waves generated in the direction the wave is traveling or being propagated.
(a) Snell's (b) Huygen's (c) Quarter wavelength's

5) If the P-wave velocity of the upper layer is 200 m/s and of the bottom layer is 1000 m/s, then the critical angle of incidence is .....
(a) 11.32 ° (b) 21.32 ° (c) 31.32 °

6) Figure 4 represents ..... velocity layering.
(a) two-layer model of planar horizontal (b) two-layer model of non-planar (c) two-layer model of planar dipping layers

Figure 4



7) In seismic refraction, source-geophone distance is ..... compared to the investigated depth.
(a) equal (b) smaller (c) large

8) The normal move-out of low-velocity shallow interface is ..... than the normal move-out of high-velocity deep interface.
(a) equal (b) lower (c) higher

9) ..... is the extrapolation or interpolation of the travel time branch defined by refracted arrivals, recorded from a source, to longer and/or shorter offsets.
(a) Reciprocal time (b) Deconvolution (c) Phantoming

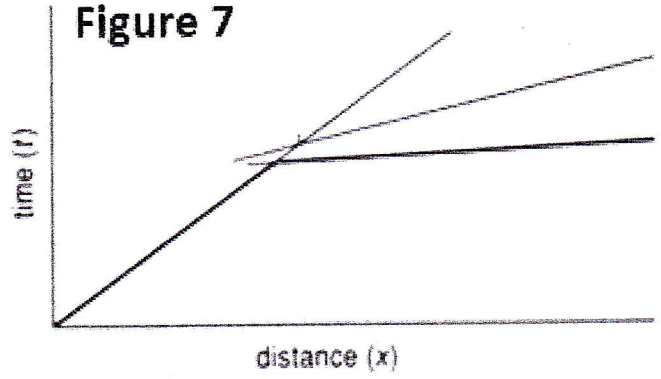
10) Multiples are usually suppressed by .....stacking, which is based on a primary velocity function.
(a) common shot gather (b) common depth point (c) common source gather

P.T.O →

2. Put (True) or (False) at each point. (15 marks)

1) The more resistant a material is to compress, the greater its shear wave velocity.
2) When seismic wave encounters a velocity discontinuity, the seismic wave energy is totally reflected.
3) In a homogeneous medium, a wavefront is spherical, and its shape is not distorted by changes in the seismic velocity.
4) If velocity is increasing downward, the refraction angle is increasing slower than increasing in the incidence angle.
5) The blind layer effect is caused if velocity is decreasing downward, the refraction angle is decreasing not fast as increasing in the incidence angle.
6) Seismic refraction makes use of critically refracted including both first-arrival energy and the rest of the waveform.
7) According to the principal of reciprocity, the travel time between the source and the geophone is affected by reciprocity of both source and the geophone.
8) Figure 7 represents three-layer velocity model with thin layer in-between.

Figure 7



9) Delay time method requires refracted arrival at each geophone from opposite directions.
10) Data redundancy in delay time method is important.
11) The first breaks are difficult to pick, because the air wave is faster and arrive at the geophones before the seismic first break.
12) The frequency of the seismic sources has inverse proportionality with the penetration depth.
13) The fundamental frequency is defined as the first and lowest peak frequency irrespective the H/V ratio.
14) The fundamental and predominant frequencies have inverse exponential proportionality with the bedrock depth.
15) Normal move-out takes place because of common depth point reflection angles along one reflector.
16) Stacking causes coherent signal is enhanced and random noise tends to cancel out.
17) Fold is the number of traces in a trace gather.
18) Semblance analysis is defined as velocity model analysis to determine the layered structure of the subsurface.
19) For multiple flat layers, reflected waves at a shallow interface undergo refractions at shallower interfaces.
20) Deconvolution is the forward process that removes the effect of the wavelet from the seismogram.

End of questions

GOOD LUCK

Assoc. Prof. Mostafa Thabet Mohammed

Geology Department Faculty of Science Assiut University		Time: 1 Hours January 2024 Sed. env. & facies (G327)

First Semester Final Examination
Subject: Sedimentary environment & facies (G327)
January 2024 - Students: 3rd level of Geology

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Answer the following questions
(25 marks, one mark for each question)

1. Calcareous oozes and siliceous oozes are biological sediments that occur where.....
a. low oxygen, bog conditions.
b. rain forests.
c. deep sea environments.
d. volcanic activity.

2. 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.
a. True b. False

3. Which of the following environments is an example of a continental environment.....
a. alluvial.
b. continental shelf.
c. Pelagic.
d. none of them
e. both (b) and (c).

4. Thick sequences of red-colored inter-bedded conglomerates, sands, and shales devoid of marine fossils and showing fining upward are generally believed to be deltaic in origin.
a. True b. False

5. Deposition within a meandering stream usually occurs on the inside of the curves because the.....

Geology Department Faculty of Science Assiut University		Time: 1 Hours January 2024 Sed. env. & facies (G327)

First Semester Final Examination
Subject: Sedimentary environment & facies (G327)
January 2024 - Students: 3rd level of Geology

==========

Answer the following questions
(25 marks, one mark for each question)

1. Calcareous oozes and siliceous oozes are biological sediments that occur where.....
a. low oxygen, bog conditions.
b. rain forests.
c. deep sea environments.
d. volcanic activity.

2. 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.
a. True b. False

3. Which of the following environments is an example of a continental environment.....
a. alluvial.
b. continental shelf.
c. Pelagic.
d. none of them
e. both (b) and (c).

4. Thick sequences of red-colored inter-bedded conglomerates, sands, and shales devoid of marine fossils and showing fining upward are generally believed to be deltaic in origin.
a. True b. False

5. Deposition within a meandering stream usually occurs on the inside of the curves because the.....

a. water velocity decreases.
b. stream gradient increases.
c. stream is narrower.

6. A vertical section through the apex of a delta thus reveals a gradual vertical increase in grain size.
a. True
b. False

7. A regression occurs when.....
a. the sea-level drops or the land rises.
b. the sea-level rises and the land drops.
c. the sea-level rises and the land also rises also.
d. both (b) and (c).

8. Fining upward sequence means that the grain size is decreasing upward, whereas coarsening upward means that the grain size is increasing upward.
a. True
b. False

9. Sedimentary facies is a term used to describe an association of sedimentary rocks that all formed.....
a. at the same time but in different depositional environments.
b. from the same source rock but at different times in Earth history.
c. in the same depositional environment but at different times in Earth history.

10. Beaches, tidal-flats, spits, bars, barrier islands, lagoons, estuaries, and deltas all form in the continental environment.
a. True
b. False

11. Marine sediments deposited in water depths greater than about 12,000 feet usually lack.....
a. carbonate shells.
b. silica-rich shells.
c. fine grained material transported by the wind.
d. none of them.

12. Walther's Law states that any vertical progression of facies is the result of a succession of depositional environments that are laterally juxtaposed to each other.
a. True
b. False

13. Point bar sediments on meandering rivers are characterized by.....

a. high content of coal.
b. a mixture of gravel, sand and clay.
c. cross bedding and fining upward in grain size.
d. none of them.

14. There appear to be a number of paleocurrent patterns which have been recorded repeatedly from rocks of different ages all over the world (such as unimodal, bimodal and polymodal).

a.True b. False

15. The sediments of a delta in any stratigraphic sequence are detected by.....

a. coarsening upward sequences, sometimes in repeated cycles.
b. fining upward sequences with continental fossil remains.
a. volcaniclastic grains.
d. only (b).

16. Fossils are the most useful tools in paleoenvironmental reconstructions. However their applications are highly limited in Precambrian rocks.

a. True b. False

17. How do we use composition and textures of sedimentary rocks as a record of the "environment" of sediment deposition.....

a. comparison with areas of modern (today) depositional environments (e.g., beaches)
b. comparison with areas of ancient (long past) depositional environments (e.g., ancient beaches)
c. comparison with areas of modern (today) erosional environments (e.g., mountain tops)

18. Sedimentary environment is a geographic location under which sediment can accumulate and characterized by a particular combination of geological processes and environmental conditions

a. True b. False

19. A classic example of the Law of Facies (law of Walter) is the vertical stratigraphic sequence depicting .....

a. igneous activity in the basin.
b. weathering and erosion of the hinterland.
c. stop of sedimentation process in the basin and forming of unconformity.
d. marine transgressions and regressions.
e. both (a) and (c).

20. Which of the following may be indicative of sediment deposition in a non-marine terrestrial environment.....

a. red colored sediments and traces of plant roots.
b. calcareous ooze with planktonic foraminifera.
c. manganese nodules and crusts.
d. both (a) and (c).

Fill in the given spaces with appropriate words

21.....are accumulations of sediment formed by the reduction in velocity of stream upon reaching the ocean. Sometimes, cross-bedded sandstones, sometimes plane-bedded sandstones.

22. Two major types of delta may be differentiated, ... dominated deltas, and those dominated by .....process.

23..... is a mass of sedimentary rock which can be defined and distinguished from others by its geometry, lithology, sedimentary structures, paleocurrent pattern, and fossils.

24.....states that any vertical progression of facies is the result of a succession of depositional environments that are laterally juxtaposed to each other.

25. Alluvial deposits may serve as an aquifer or a petroleum reservoir because of their.....

****

Good luck ***Dr. Abdalla El Ayyat***

الفصل الدراسي الأول
ديسمبر ٢٠٢٣

جامعة أسيوط–كلية العلوم
قسم الجيولوجيا

G 327: Sedimentology & Depositional Systems

Part 1: Sedimentology (25 Marks)

Answer five questions only:

1. **Mention the names of the different types of sedimentary rocks.** **(5 Marks)**

2. Describe briefly the texture and composition of the following rocks: **(5 Marks)**
   a- Grey wacke
   b- Oligomict conglomerate

3. a- What is the difference between the conglomerate and breccia? **(5 Marks)**
   c- Define the tem mudrocks. What is the difference between siltstone and claystone?

4. a- What is the difference between mudstone and shale? **(5 Marks)**
   b- Mention the main three mineralogical composition of mudrocks

5-Write a brief account on the silisiclastic diagenesis. **(5 Marks)**

(5 Marks)

أ.د. محمد احمد سليمان

جامعة أسيوط–كلية العلوم
قسم الجيولوجيا

الفصل الدراسي الأول
ديسمبر ٢٠٢٣

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(5 Marks)

أ.د. محمد احمد سليمان

Assiut University Faculty of Science Geology Dept		جامعة أسـيوط كلية العلوم- قسم الجيولوجيا Ju.2023

(Total Marks:33) **Igneous & Metamorphic Rocks**
Time: One Hour

Choose the correct answer of the following:

1-Extrusive rocks is formed from:
a-Magma cooling inside the earth
b-Lava cooling outside on the earth's surface.
2-Intrusive rocks is formed from:
a-Magma cooling inside the earth b-Lava cooling outside on the earth's surface
3-The major difference between intrusive and extrusive igneous rocks is grain size?
a-True b- False
4-The mineral composition of gabbro is plagioclase and pyroxene ?
a-True b-False
5-Which of the following pairs of igneous rocks have the same mineral composition?
a-granite- rhyolite b- granite- andesite c-granite- basalt
6-Mafic rocks contain about ------ % silica.
a- 20 b-50 c-80
7-Ultramafic rocks contain about ------ % silica.
a- <45 b-45-52 c-52-66
8- Silicic (felsic) rocks contain about ---- % silica.
a-10 b-25 c-70
9-Which is an extrusive igneous rocks.
a-gabbro b-rhyolite c-granite
10-Texture of volcanic rocks is
a-fine grained b-coarse grained c-pegmatitic texture
11-Texture of plutonic rocks is
a-fine grained b-coarse grained c-vescular texture
12-Glassy or fine-grained rocks are formed due to:
a-Rapid cooling b- Slow cooling c-Both
13-An example of extrusive igneous rock is:
a-gabbro b-andesite c-granite
14-Which is not an intrusive igneous rocks.
a-gabbro b-basalt c-granite
15-Composition of granites
a -alkali feldspar b-plagioclase c-all of the above

16-Composition of diorite
a- hornblende b-plagioclase c-both of the above
17-Glassy texture occur in
a-Volcanic rocks b-Plutonic rocks c-Both
18-Vesicular texture occur in
a-Volcanic rocks b-Plutonic rocks c-Both
19-Amygdaloidal texture occur in
a-Volcanic rocks b-Plutonic rocks c-Both

20-Slate rocks is
a- regional metamorphism b-thermal metamorphism c-dynamic metamorphism
21-Mylonite rocks is
a- regional metamorphism b-thermal metamorphism
c-dynamic metamorphism
22-Hornfels rocks is
a- regional metamorphism b-thermal metamorphism
c-dynamic metamorphism
23-Agent of regional metamorphism is
a-pressure b-temperature c- both
24-Agent of dynamic metamorphism is
a-pressure b-temperature c- both
25-Agent of thermal metamorphism is
a-pressure b-temperature c- both
26-Composition of mylonites
a-feldspar, mica, and quartz b-mica, olivine and pyroxene
c-olivine, chlorite and mica
27-Composition of hornfels
a-plagioclase, mica and quartz. b- mica, olivine and pyroxene
c-olivine, chlorite and mica
28-Composition of quartzite
a-quartz b-calcite c-moca
29-Composition of marble
a-calcite b- quartz. c- olivine
30-Composition of amphibolites
a-amphiboles and plagioclase b-plagioclase and olivine
c-olivine and mica
31-Composition of phyllite
a-micas and chlorite b-plagioclase and quartz
c-olivine and pyroxene
32-Composition of slate
a-muscovite and chlorite b-quartz and olivine
c-olivine and pyroxene

Assiut University
Faculty of Science
Geology Department

Sedimentary petrology (G324) for 3d level student

PART II SEDIMENTARY ROCKS

Select the letter (a, b, c or d) of the choice that BEST answers the question.
Each question has only one correct answer.
(TWO mark for each question) *14-1-2024*

Choose the correct answer for the following statements

33. Which sequence of events occurs in the formation of a sedimentary rock?

a. Source material eroded ➡ Sediments deposited ➡ Sediments compacted and cemented

b. Sediments compacted and cemented ➡ Sediments deposited ➡ Source material eroded

c. Sediments deposited ➡ Sediments compacted and cemented ➡ Source material eroded

d. Source material eroded ➡ Sediments compacted and cemented ➡ Sediments deposited

34. A clastic rock is:

a. a rock formed from the cementation of transported grains

b. a rock formed from evaporation of sea water

c. transformed by heat into limestone

d. transformed by pressure into limestone

35. Which of the following lists is written in order of decreasing particle size?

a. sandstone, siltstone, conglomerate

b. sandstone, conglomerate, siltstone

c. conglomerate, sandstone, siltstone

d. siltstone, sandstone, conglomerate

36. What is the difference between a breccia and a conglomerate?

a. breccias are coarse grained and conglomerates are fine grained

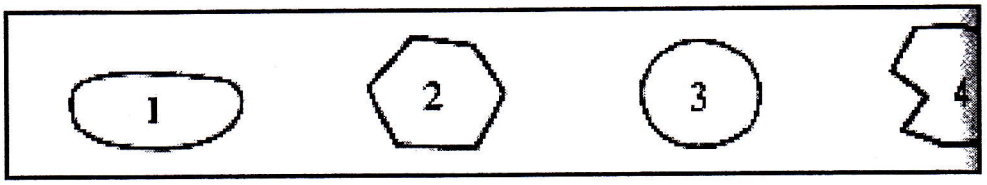
b. conglomerates are coarse grained and breccias are fine grained

c. breccias have rounded fragments and conglomerates have angular fragments

d. breccias have angular fragments and conglomerates have rounded fragments

37. Which of the sand grains has been transported the furthest?

a. 1
b. 2
c. 3
d. 4



38. Conglomerate is:

a. Clastic supported

b. Matrix supported

c. Both A and B

d. None

39. Oolitic limestone is an example of

a. Carbonate rocks

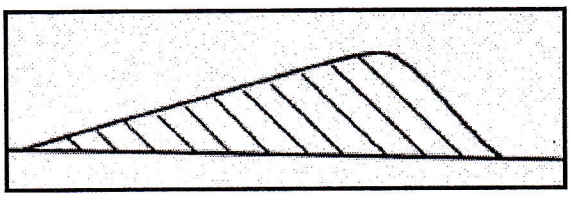
b. Siliceous rock

c. Argillaceous rock

d. Calcareous rocks

40. In the cross section of a sand dune given above, the wind was blowing?

a.<-------
b. -------->
c.<------->
d. cannot determine direction from information given.



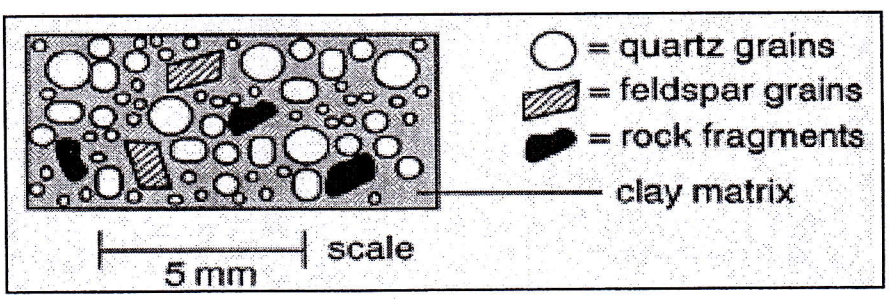
41 What type of sandstone is depicted in the illustration above?

a. quartz arenite

b. litharenite

c. arkose

d. this is a granite!!



---------- *GOOD LUCK* ----------

بسم الله الرحمن الرحيم

Assiut University	جامعة أسيوط
Faculty of Science	كلية العلوم
Geology Department	قسم الجيولوجيا

امتحان المستوى الثالث جيولوجيا

مقرر 319 جيولوجيا -الجزء الأول (Chronostratigraphy)

25 درجة (25 Marks)

الزمن: ساعة واحدة — دور يناير 2024

Answer Two questions of the following:

1- **Define the GSSP and the prerequisites to be fulfilled by a chronostratigraphic Type-Section.**

1- عرف معنى القطاع الطباقى الدولى النموذجى والشروط اللازم توفرها فى هذا القطاع لتعيين الحدود الفاصلة بين الوحدات الزمنية (12,5 درجة)

2- **A- Suppose that the geologic time scale is only one year made up of 12 months starting from first January to end of December. Try to arrange successively the characteristic bio-events which occurred on the Earth during this time interval. (6.5 Marks)**

A-2 – إفترض أن التاريخ الجيولوجى للأرض هو عام واحد فقط مدته 12 شهرا يبدأ من يناير وينتهى فى أخر ديسمبر. حاول أن ترتب زمنيا بالتوالى الأحداث البيولوجية التى جرت على وجه الأرض خلال هذه الفترة الزمنية (6,5 درجة)

2- B- Identify the following (6 Marks)

2- B- عرف مايلى (6 درجات)

a)The Greenhouse effect

2-1- ظاهرة الدفيئة (الصوبة الزجاجية)

b) Chronostratigraphic units

2-ب- الوحدات الطبقية الزمنية

c) Radioactive decay

3-ج- ظاهرة الإضمحلال الإشعاعى

3- **A- Define the reasons and consequences of the climatic changes which affected the Earth during the end of the Cretaceous Period and led to the global extinction of the Dinosaurs.**

A-3 - أذكر أسباب وتداعيات الأحداث المناخية التى شهدها سطح الكرة الأرضية فى نهاية العصر الطباشيرى وأدت إلى الإنقراض الجماعي للديناصورات(6,5 درجة)

3- B : Identify the meaning of correlation and its criteria between different stratigraphical sequences (6.0 Marks)

B-3- عرف معنى المضاهاة وأذكر شواهدها بين التتابعات الطبقية (6.5 درجة)

Good Luck - Prof. Dr. Khaled Ouda

بسم الله الرحمن الرحيم

Assiut University — جامعة أسيوط

Faculty of Science — كلية العلوم

Geology Department — قسم الجيولوجيا

امتحان المستوى الثالث جيولوجيا

مقرر 319 جيولوجيا -الجزء الأول (Chronostratigraphy)

25 درجة (25 Marks)

الزمن: ساعة واحدة — دور يناير 2024

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2- **A- Suppose that the geologic time scale is only one year made up of 12 months starting from first January to end of December. Try to arrange successively the characteristic bio-events which occurred on the Earth during this time interval. (6.5 Marks)**

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2- B- Identify the following (6 Marks)

2- B- عرف مايلى (6 درجات)

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2-1- ظاهرة الدفيئة (الصوبة الزجاجية)

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Good Luck - Prof. Dr. Khaled Ouda

Assiut University Faculty of Science Geology Department		جامعة أسـيوط كلية العلوم قسم الجيولوجيا

First Semester Final Examination 2023/2024

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

Students: Third Year Students **Date: Jan., 14, 2024**

Examiner: Prof. Dr. Mamdouh F. Soliman

Answer only 3 from the following: **(8.5 marks for each question)**

1- Write on the Consequences of a large impact event within the sedimentary sequence. ***(8.5 marks)***

2-Give possible explanations of the following geochemical and mineralogical signatures in stratigraphic record: **(8.5 marks)**

A. Sharp decrease in $\delta^{18}O$ at the P/E boundary

B. Sharp increase in TiO_2/Al_2O_3 and Si/ Al_2O_3 ratios in a particular sedimentary bed

C. Enrichment of chalcophile elements and organic matter in a specific stratigraphic horizon

D. Stony meteorites

3- Write On:- ***(8.5 marks)***

A. The relative abundance of the clay minerals may reflect the climatic changes. **Give explanation with examples?**

B. Biological processes of Carbon isotope fractionation

C. Write the chemical formula of: Kaolinite, Sphalerite and Orthoclase

4- Write On:- ***(8.5 marks)***

A- Effect of chemical weathering on olivine minerals

B- Hydrolysis in chemical weathering with an example

C- Asteroids

==========

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

جامعة أسيوط
كلية العلـــوم-قسم الجيولوجيا

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

الزمن : ٢ ساعة — يناير ٢٠٢٤م

PRINCIPALS OF STRUCTURAL GEOLOGY

(50 marks)

Try to illustrate your answers with suitable drawings when possible

ANSWER THE FOLLOWING QUESTIONS:

I - Write short notes on TWO ONLY: *(10marks)*

1- How and why the "**brittle**" deformation different from the "**ductile**" deformation"?

2- What is the difference between symmetrical, asymmetrical, overturned, and recumbent folds? Use simple diagrams showing each, indicating the axial plane.

3- The different types of movements along the faults. Give examples.

II- Choose the correct answer for the following statements and Then rewrite in your answer paper *(10 marks)*

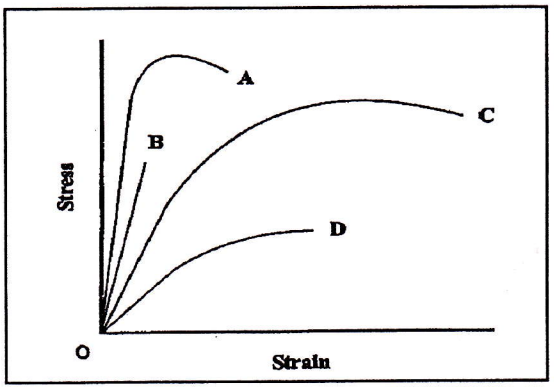
4. Elastic limit is the point
   a. Up to which stress is proportional to strain
   b. At which elongation takes place without application of additional load
   c. Up to which if the load is removed, original volume and shapes are regained
   d. None of the mentioned
5. The line of maximum curvature in a fold is known as:
   a. Crest.
   b. Axis.
   c. Hinge.
   d. Trough.
6. Drag folds:
   a. Occur within the competent beds.
   b. Within the competent beds.
   c. Within the incompetent beds are overlain by competent beds.
   d. When vertical stresses act on horizontal beds.
7. An unconformity is
   a. a sedimentary unit.
   b. a period of deposition.
   c. a buried erosional surface.
   d. a type of fold.
   e. a type of fault.
8. Laccoliths is a primary structure of which type of rock?
   a. Igneous rock
   b. Sedimentary rock
   c. Metamorphic rock

III-- Define and illustrate by drawings FOUR ONLY: *(8 marks)*

a. Overturned anticline – **b.** Kink Fold – **c.** Extension Joints – **d.** Conjugate Joints – **e.** Parasitic Folds

الامتحان فى صفحتين

IV. Look at the graph below which showing stress-strain diagrams of four materials (A, B.C&D) and answer the questions: *(8 marks)*



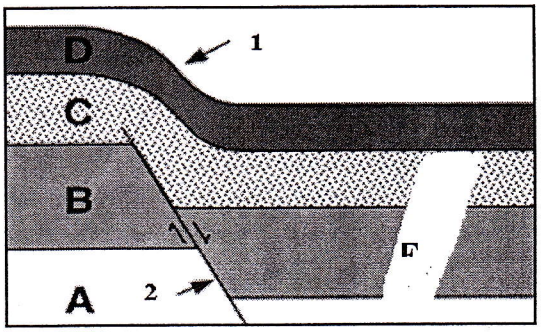
a. The stress-strain curve of the strongest material is A / B / C / D. **Why?**

b. The stress-strain curve of the most brittle material is A / B / C / D. **Why?**

c. The stress-strain curve of the most ductile material is A / B / C / D **Why?**.

d. The stress-strain curve of the stiffest material is A / B / C / D. **Why?**

V. From the fronting block diagram *(6 marks)*



a. Identify the geologic structures versus arrows **1** and **2**

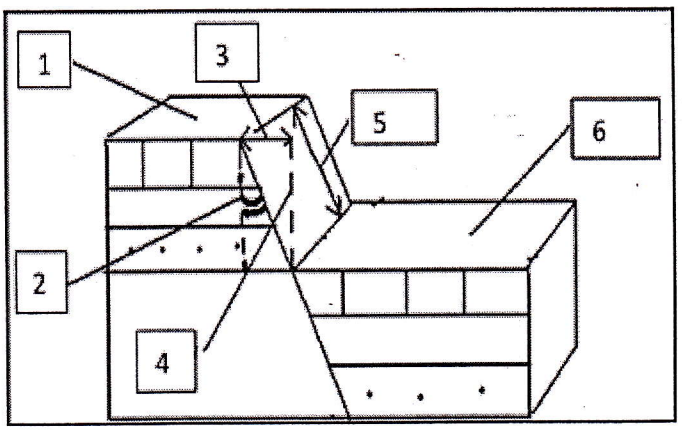
b. Which of the four rock layers (**A, B, C** and **D**) have shown **ductile** deformation?

c. Which of the four rock layers (**A, B, C** and **D**) have shown **brittle** deformation?

d. Put the events in order from oldest to youngest.

VI. What is the type of the fault draw in the fronting block diagram? *(4 marks)*

Show the different fault-slip components in the blank rectangles.



VII-True or False? Circle the correct answer. *(4marks)*

a. Plastic deformation is likely to occur in rocks under high-temperature and high-pressure conditions.
True or **False**

b. In eroded anticlines, the oldest rocks are in the center; in eroded synclines, the youngest rocks are in the center.
True or **False**

c. The difference between a joint and a fault is the fault is larger.
True or **False**

d. In an anticline, the hanging wall moves upward relative to the footwall.
True or **False**

GOOD LUCK

Prof. Dr. Ahmed R. El Younsy

الامتحان فى صفحتين

Assiut University *Faculty of Science* *Geology Department*		*First Semester Exam.* *2023 - 2024* *Time: 2 hours*

Subject: Sedimentary Environments and Sedimentary Basins (G335)

Answer the following questions: **(50 Marks)**

1. *Some environmental parameters can be reached based on fossils, mention these.* *(5 Marks)*
2. *Rift valley is formed due to successive stages, explain these illustrating your answer with drawings.* *(6 Marks)*
3. *Important information's are gained from the interpretation of ancient sedimentary environments, mention these.* *(3 Marks)*
4. *Rate of basin subsidence and sedimentary fills are controlled by many extra and intra basinal processes, write on these.* *(6 Marks)*
5. *Abu Gharadiq basin is one of the most prominent productive sedimentary basins in Egypt, mention its location, thickness of its sediments, age of source rock and type of oil-bearing sediments.* *(6 Marks)*
6. *Which of the following is true and which is false, correct the false ones:* *(10 Marks)*

   a. ( ) *Deltaic sediments are important sites for hydrocarbon accumulation*
   b. ( ) *Formation of sedimentary basins are related to divergent, convergent and static plate motion boundaries*
   c. ( ) *Grain size is used for the interpretation of energy prevailing during sedimentation*
   d. ( ) *Sedimentary cycle is characterized either by vertical variation in primary sedimentary structures and/or the change in lithology*
   e. ( ) *Lithology of sediments are not indicative of paleoclimate*

f. ( ) *Transtensional and transcompressional basins are related to horizontal stresses (lithosphere shearing)*

g. ( ) *The Quseir Formation of Egypt was accumulated in aeolian environment*

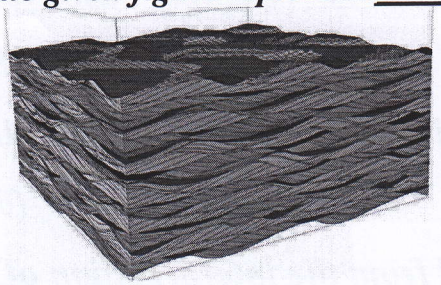
h. ( ) *El Gindi basin is located in the Gulf of Suez region*

i. ( ) *Flood plain and bed load fluviatile sediments are used for the same industrial purposes*

j. ( ) *All the sedimentary basins of Egypt belonging to the same age*

7. *Choose the correct answer A, B, C or D:* *(14 Marks)*

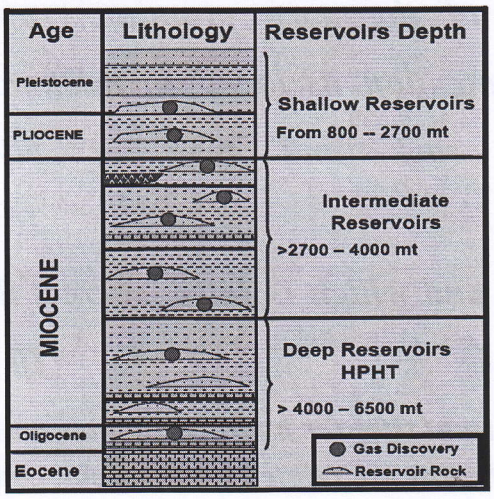
a. *The given figure represents*_____



Ⓐ *Wavy-bedding* Ⓑ *Lenticular-bedding*

Ⓒ *Flaser-bedding* Ⓓ *Trough cross-bedding*

b. *The given stratigraphic column represents the sediments sequence observed in oil field of* _____



Ⓐ *Komombo basin* Ⓑ *Abu El Gharadiq basin*

Ⓒ *Shushan basin* Ⓓ *Nile Delta basin*

c. *Excellent examples of modern aeolian sediments in Egypt are well documented in* _____

Ⓐ *Western Desert* Ⓑ *Red Sea region* Ⓒ *Nile Valley region* Ⓓ *Sinai*

d. *Which of the following can be applied to describe the sedimentary basins according to the style of distortion?*

Ⓐ *Active basins* Ⓑ *Slightly deformed*

Ⓒ *Elongated basins* Ⓓ *Symmetrical basins*

e. *Which of the following areas is related to asthenospheric flow subsidence mechanism?*

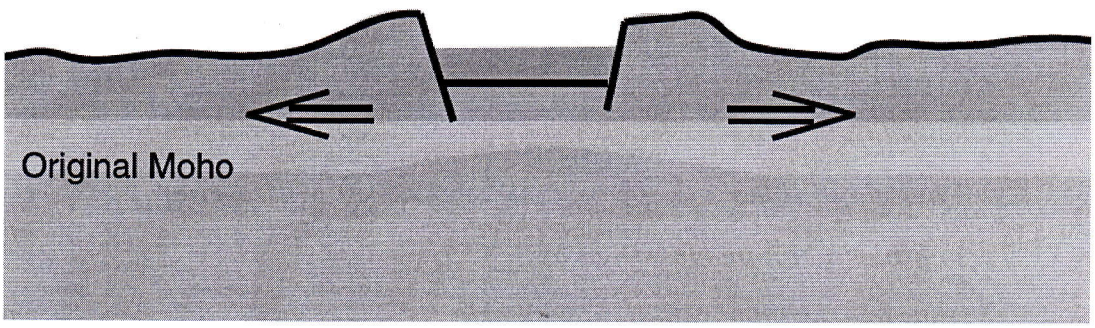
Ⓐ *Red Sea basin* Ⓑ *Baikal rift* Ⓒ *Los Angeles basin* Ⓓ *Namibe basin*

f. *The given photo represents*_____

Ⓐ *Sand dunes* Ⓑ *Sand sheets*

Ⓒ *Desert mushroom* Ⓓ *Pedestal rock*

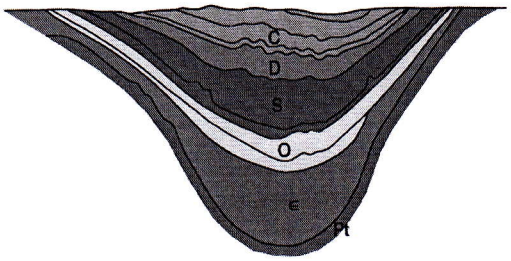
g. *The given figure represents*_____



Ⓐ *Mantle-lithosphere thickening* Ⓑ *Subcrustal loading*

Ⓒ *Crustal thinning* Ⓓ *Mantle convection*

h. *The given figure represents _____basin*



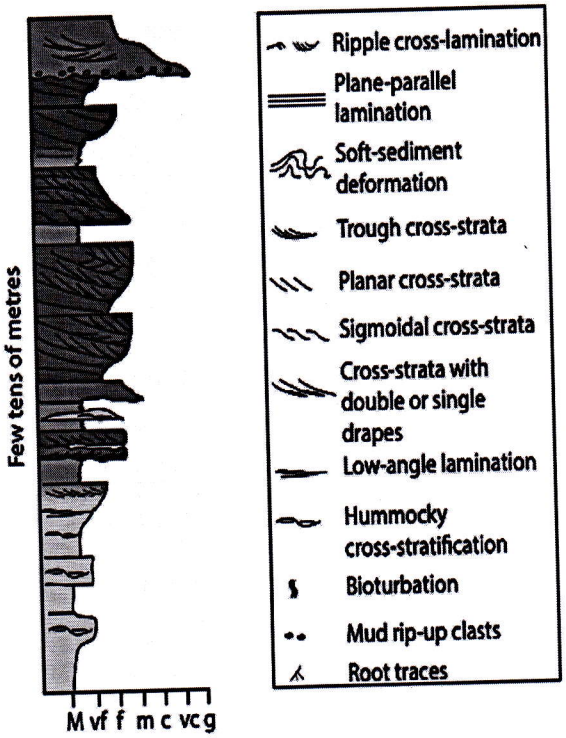
Ⓐ *Symmetrical*

Ⓑ *Asymmetrical*

Ⓒ *Semi-symmetrical*

Ⓓ *Both A & B*

i. *The given stratigraphic column represents _____delta*



Ⓐ *Tide-dominated*

Ⓑ *River-dominated*

Ⓒ *Wave-dominated*

Ⓓ *Mixed-energy*

j. *Trench basin can be classified as _____*

Ⓐ *Divergent-related sedimentary basin*

Ⓑ *Subduction-related sedimentary basin*

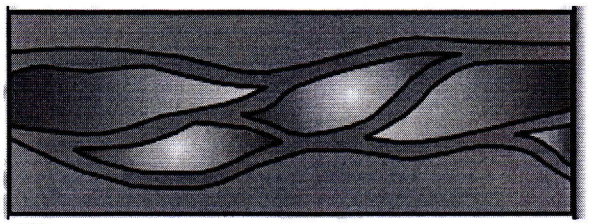
Ⓒ *Collision-related sedimentary basin*

Ⓓ *Strike slip-related sedimentary basin*

k. *According to the available published data up to 2021, the number of rift basins allover the world was estimated as_____*

Ⓐ *107* Ⓑ *111* Ⓒ *130* Ⓓ *150*

l. *The given figure represents* ———



Ⓐ *Braided channel* Ⓑ *Meandering channel*

Ⓒ *Anastomosing channel* Ⓓ *Straight channel*

m. *Chad, Sirte and Muglad sedimentary basins are of _____ age*

Ⓐ *Jurassic* Ⓑ *Miocene*

Ⓒ *Cretaceous* Ⓓ *Eocene*

n. *Cretaceous glauconite deposits occur in Egypt at_____ area*

Ⓐ *Kharga-Dakhla* Ⓑ *Beni Suef* Ⓒ *Alamein* Ⓓ *Assiut*

Good luck *Ezzat A. Ahmed*

Assiut University
Faculty of Engineering
Mining & Metall.dept.

Final Examination for 3rd (Mineral prospection and industrial minerals and rocks (Chem 305)
First term Jan2024
Time: 2 hours

Answer the following Questions:

Question 1 (20 Marks)

A- Mark the correct sentence with (√) and the false one with (×) (15 marks)

1- If the thickness of the ore is small, the best way to detect is to make trenches. ( )

2- Sedimentary methods: their formation is controlled by different sedimentation factors. ( )

3- The most important metamorphic mineral deposits are asbestos, graphite and talc deposits ( )

4- Tantalum is widely used in the manufacture of surgical equipment and devices implanted in the human body ( )

5- Lithium is a component of small batteries in electronic devices. ( )

6- Argillic alteration, in which rock minerals, especially feldspar, are transformed into clay minerals (kaolin). ( )

7- Ceramic material is an inorganic and non-metallic oxid ( )

8- The modern ceramic materials, which are classified as advanced ceramics, include silicon carbide and tungsten carbide. ( )

9- Filler (materials), particles added to a matrix material, usually to improve its properties ( )

10- Electrical insulators are used to hold conductors in position ( )

11- Mercury enters the digestive system through agricultural or other environmental sources ( )

12- The minerals necessary for humans are: sodium, potassium, magnesium, ( )

13- Zinc deficiency is usually attributed to poor diet and can cause developmental delays ( )

14- Tungsten polyoxanion can be used to treat AIDS. ( )

15- Allergic reactions to nickel, especially between skin and metals through jewelry, are common ( )

B- What are the factors that determine the economic value of the ore? (5 Marks)

Question 2

(20Marks)

A- Complete the following sentences with the correct words **(15 Marks)**

1- The two largest segments for filler material use is ----------and----------

2- Referred to as "chalk" in the plastic industry, calcium carbonate is derived from ----------and ----------

3- --------- is the process of increasing the rate of a chemical reaction by adding a substance known as a----------

4- The most common form of crystalline ---------- is known as corundum.

5- Important heterogeneous catalysts include ---------- and----------

6- Raney nickel is a fine-grained solid composed mostly of nickel derived from ----------

7- Some common uses for abrasives include ---------- and ----------

8- Abrasives generally rely upon a difference in ---------- between the abrasive

9- ----------and ---------- is a common abrasive materials

10-Ceramic materials are ----------in compression, and ---------- in tension.

11-Metallic pigments, as implied in the name, include metal pigments such as ----------and---------- pigments.

12- Building stones belong to a----------, ----------, and ----------origin.

13- Industrial gypsum: it is broken into suitable sizes to feed ----------or --------

---

14- fertilization focuses on three main macro nutrients: ----------, ----------

----------, and ----------

15- Fertilizers enhance the growth of ----------

B-Some factors which will affect how quickly a substance is abraded include:(5 marks)

Question 3

(10 Marks)

1- Select the correct answer from words?

a- The copper conductors utilized in the electrical wiring of homes are insulated from each other and from

i- Porcelain

ii- Mica iii- Plastics

b- Thermal insulating materials include

i- Fiberglass

ii- Glass iii- Silicon

c- Tin-lead solder attaches very well to

i- Copper

ii- Iron iii- Silica

d- ---------is used to remove oxide films, promote wetting, and prevent reoxidation of the surfaces during heating.

i- zinc chloride

ii- Limestone iii- Dolomite

e- -------is commonly used for this purpose in smelting iron ores

i- Fluorite

ii- Limestone iii- Mica

f- Typically, materials used as abrasives are either hard minerals rated at

i- 6 Mohs scale

ii- 7 Mohs scale iii- 4 Mohs scale

Geology Department Faculty of Science Assiut University		Time: 1 Hours January 2024 Marine Geology (G323)

First Semester Final Examination- Subject: Marine Geology (G323)
January 2024 - Students: 3rd level of Geology

==========

Answer the following questions (25 marks)

1. Groups of marine life includes.....(one mark)

a. plankton. b. nekton. c. Benthos.
d. both (a) and (b). e. all of them.

2. Benthos group organisms live on.....(one mark)

a. ocean floor. b. ocean surface. c. deep sea
d. ocean basin. e. none of the above.

3. As the sea floor widen out and get separated from mid-ocean ridge, it carries a record of.....(one mark)

a. magnetic reversal. b. electric reversal. c. thermal reversal
d. static. e. all the above.

4. The oceanographic term that means floating or drifting - relating to both microscopic and macroscopic organisms is.....(one mark)

a. plankton or planktonic. b. nekton or nektonic.
c. benthos or benthic. d. poikilothermic or homeothermic.

5. The bottom parts of the ocean that totally dark even during daylight hours is called the.....(one mark)

a. littoral zone. b. aphotic zone. c. epipelagic zone.
d. benthic zone. e. oxygen minimum zone.

6. Which marine organism is responsible for producing most of Earth's oxygen and plays a vital role in the marine food web.....(one mark)

a. Coral. b. Jellyfish. c. Phytoplankton.
d. Sea turtle. e. both (c) and (d).

7. Which of the following oceans is between Africa and Australia.....(one mark)

a. Arctic ocean. b. Atlantic ocean. c. Pacific ocean
d. Indian ocean. e. none of them.

8. The sea bed sloping gradually and bordering the continent is known as.....(one mark)

a. coast. b. continental shelf. c. continental platform.
d. continental slope. e. continental rise.

9. Bermuda Triangle is located in.....Ocean (one mark).

a. Indian ocean. b. Pacific ocean. c. Atlantic ocean.
d. Arctic ocean. e. Arabian sea.

10. Manganese nodules are considered to be.....(one mark)

a. hydrogenous sediments.
b. lithogenous sediments.
c. biogenous sediments.
d. cosmogenous sediment.
e. none of them.

11. Which are NOT a biogenous sediment.....(one mark)

a. calcareous oozes. b. siliceous oozes
c. coral reef deposits. d. quartz-rich beach sand.
e. none of them.

12. Where are the thickest accumulations of sediments mostly found around the world.....(one mark)

a. the outer margins of continental shelves b. on continents.
c. on ocean ridges. d. on abyssal plains.

13. A turbidite is a kind of rock formed from.....(one mark)

a. sediments deposited by an underwater landslide on a deep-sea fan on a continental rise.
b. sediment deposited around a shallow water coral reef.
c. sediment deposited along a beach near a river delta.
d. sediment that accumulates from the underwater rain of pelagic biogenous sediments (such as the skeletal remains of dead plankton).

14. Which deposits are not likely found on a continental shelf.....(one mark)

a. delta sand and mud deposits.
b. siliceous oozes.
c. carbonate mud and reef deposits.
d. offshore bars and beach sand deposits.

15. What kind of sediment or rock are you likely NOT to find below the Carbonate Compensation Depth (CCD)..... (one mark)

a. lime mud.
b. siliceous ooze.
c. basalt.
d. all of the above.

16. Which ocean can be found in all longitudes.....(one mark)

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

17. Calcium carbonate oozes may be the dominant sediment type.....(one mark)

a. on the abyssal plains.
b. below surface waters that have high diatom populations.
c. only above the carbonate compensation depth (CCD).
d. mainly below surface waters that are low in nutrients.

18. On passive margins, sediments carried by turbidity currents mostly settle out onto which marine province.....(one mark)

a. continental shelf.
B. continental slope.
c. continental rise.
D. abyssal plain.

19. Which is the largest sea in the world.....(one mark)

a. South China sea.
b. Mediterranean sea.
c. Black sea.
d. None of these.

20. What is the name of the Mesozoic super-continent that consisted of all of the present continents.....(one mark)

a. Eurasia. b. Laurasia. c. Pangaea.
d. Gondwanaland. e. none of the above.

21. Who is credited with inventing the magnetic compass.....(one mark)

a. Arabs. b. Chinese. c. Romans. d. Greeks.

22. Which of the following increases with distance from a mid-ocean ridge.....(one mark)

a. the age of oceanic lithosphere.
b. the depth to the sea floor.
c. the thickness of the lithosphere.
d. all of the above.

23. The circumference of the world was first accurately calculated by.....(one mark)

a. Aristotle. b. Ptolemy. c. Herodotus.
d. Eratosthenes. e. Seneca. f. none of them.

24. Pelagic means.....(one mark).

a. the ocean bottom.
b. the vegetation in the ocean.
c. the water column.
d. a sandy surface such as a tidal flat.
e. a rocky surface such as a coral reef.

25. Organisms living near the surface are living in the.....zone (one mark).

a. photic. b. aphotic.
c. neritic. d. pelagic.
e. benthic. f. none of them.

Good Luck *Dr. Abdalla El Ayyat*

Prof. Dr. Gamal Zidan Abdelaal

Assiut University
Faculty of Science
Department of Geology

Date: Jan 2024
Time allowed: 1 hour

Final Exam

Gravity and Magnetic Prospection (G 351), Total 25 Marks

==========

Part one (Gravity Prospection)

A) Mark the following statements with True (√) or False (X): (25 marks, one mark each)

No	Statement	TRUE (√)	FALSE (X)
1	The force of one body acting on another is given by Galileo's law of gravitation		
2	The Geoid is defined as a surface with unequal gravitational field.		
3	The gravity acceleration at the pole is smaller than that at the equator		
4	The typical gravity anomaly size does not vary greatly because of the very narrow range of rocks density		
5	Pendulums and falling masses are two different methods for measuring relative gravity		
6	In GRACE mission, the gravity field is measured by the accurate distance between the two satellite aircrafts		
7	The latitude correction is performed using the international gravity formula		
8	The free-air effect is added if you are above sea-level and is subtracted if you are below sea-level		
9	The Bouguer effect is subtracted if you are above sea-level (+h) and added if you are below sea-level (-h).		
10	Eötvös correction is applied to gravity data when a gravimeter is mounted on a moving platform		
11	Lower than average density bodies will cause a negative gravity anomaly.		
12	In gravity method, the deeper the body the broader the anomaly		
13	Upward continuation suppresses the short wavelength magnetic anomaly		
14	Second vertical derivative of gravity data will define the boundaries of the target		
15	Salt dome will result in a gravity low anomaly		
16	Upward continuation suppresses the short wavelength of gravity anomaly		

Prof. Dr. Gamal Zidan Abdelaal

17	Localized, short wavelength gravity anomalies can originate only from shallow density inhomogeneity		
18	Gravity alone cannot distinguish between a strong density contrast at depth and a more diffuse contrast shallow		
19	Ore deposit such as galena and pyrite represent a good target for gravity survey		
20	The regional gravity anomaly reflects a long wavelength and attributed to deep-seated crustal features.		
21	For gravity field survey the station interval should be smaller than the size of the anomalous feature		
22	The local-regional anomaly separation is conducted to gravity data to emphasize some anomalies and suppress others		
23	Air filled voids or cavities will result in a gravity low anomaly		
24	Airy's Model for isostasy assumes that all blocks have the same density but different thicknesses		
25	Ambiguity in gravity interpretations arise from the problem that different geological models could produce the same gravity anomaly		

==========**Best wishes** ==========

ssiut University
Faculty of Science
Geology Department

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

First Semester, Third Level Final Examination

Time: 2hours	Total marks: 50	Gravitational and Magnetic Exploration (G351)	January, 2023

Second Part: Magnetic Exploration (25 marks)

Answer the following questions: (10 marks)

1. Choose the correct answer from **(a)**, **(b)**, and **(c)**.

1) When the rock is in a magnetic field, the alignment of magnetic moments by the field produces.....
(a) total magnetization **(b)** remanent magnetization **(c)** induced magnetization

2) The total magnetization of a rock is the ..... of the remanent and induced magnetizations.
(a) ratio **(b)** sum **(c)** average

3) Total field magnetic anomaly maps record the components of local anomalies in the direction of the.....
(a) vertical component **(b)** Earth's main field **(c)** Earth's rotation axis

4) The ..... is a measure of the ability of a material to convey a magnetic flux or the relative ability of a material to create local magnetization.
(a) magnetic permeability **(b)** magnetic moment **(c)** magnetic susceptibility

5) Diamagnetic susceptibility is reversible, ...
(a) small and positive **(b)** weak and negative **(c)** weak and positive

6) A common example of an antiferromagnetic mineral is .....
(a) itabirite **(b)** magnetite **(c)** ilmenite

7) Any anomaly with a "true" wavelength less than the Nyquist wavelength Kn (= twice the station, sample, or line, spacing Dx) will not be identified, and will have the effect of distorting the good data that possess wavelengths ..... the Nyquist.
(a) longer than **(b)** shorter than **(c)** similar to

8) The main ..... occur towards local noon when peaks are observed in mid-latitudes and troughs near the magnetic equator.
(a) magnetic storms **(b)** micropulsations **(c)** diurnal variations

9) Aliasing of data occurs when we extract anomalies or signals possessing a wavelength ..... the sample, or line spacing.
(a) equal to twice **(b)** less than twice **(c)** greater than twice

10) The horizontal component, H_h, of the surface geomagnetic field, **H**, is defined as positive downwards and is given by.....
(a) $H_h = H \tan I$ **(b)** $H_h = H \sin I$ **(c)** $H_h = H \cos I$

P.T.O →

2. Put (True) or (False) at each point. (15 marks)

1) The magnetic susceptibility, defined as the ratio of the intensity of the remanent magnetization to that of the induced magnetization.

2) The direction of the induced magnetization is parallel to the Earth's magnetic field in the rock.

3) A simple compact magnetic body produces a magnetic anomaly that has only positive and negative parts.

4) A gradiometer measures the gradient at the top of the sensor spacing.

5) The vertical distance between the magnetic source and the magnetometer sensor is called the source-sensor separation.

6) Remove the regional magnetic gradient to better define the regional anomalies.

7) In low magnetic latitudes, it can be shown that the dipolar nature of compact magnetic sources leads to anomaly patterns that are more extended in an E-W direction and therefore better defined by N-S survey-lines.

8) Analytic signal enhances the edges of magnetized bodies (e.g. faults, structural contacts).

9) Felsic areas of granitic/gneissic terrain often show a plethora of low amplitude anomalies.

10) Gradiometer is defined as a differential magnetometer where the spacing between sensors is fixed and small with respect to the distance to sources whose gradients are to be measured.

11) The origin of geomagnetic secular variation can be the non-dipole changes dominating the shorter periods.

12) The purpose of mounting a magnetometer sensor on an extended longer staff is to remove the sensor from the locally disturbing effects of highly magnetic surface materials.

13) Remove or filter out anomalies whose wavelength is on the order of the depth to sources of interest.

14) The first vertical derivative in an aeromagnetic survey is equivalent to observing the horizontal gradient directly with a magnetic gradiometer.

15) The same anomaly could be produced by the peculiar distribution of magnetite (unrealistic geologically), and a uniform distribution of magnetite within the prismatic form (realistic).

End of questions

GOOD LUCK

Assoc. Prof. Mostafa Thabet Mohammed

كلية العلوم
جامعة أسيوط

كلية العلـــوم-قسم الجيولوجيا

جامعة أسيوط

امتحان طلاب المستوى الثالث (ساعات معتمدة)

مقرر (٣٤٠ ج) ميكانيكا الصخور وجيولوجيا تركيبية

يناير ٢٠٢٤ | الدرجة الكلية (٥٠ درجة) | الزمن : ٣ ساعات

Part1: Rock Mechanics (18 Marks)

A) Define the following items (9 Marks)?

1- Lithostatic pressure
2- Intracrystalline deformation
2- Ductile substances
4- Creep
5- Stress Ellipsoid
6- Elastic strain

B) Label the correct sentence with true (T) and the incorrect one with false (F) (9 Marks)

1- Granular flow characterizes the deformation of highly porous sediments deforming in a shearing mode or in response to vertical loading.	( )
2- The strength of a rock increases at depth because of the increase in confining pressure.	( )
3- The process of finding the resultant of two or more forces is called the composition of forces.	( )
4- The characteristic feature of brittle deformation is fracturing and frictional sliding.	( )
5- Electromagnetic is an example of surface forces.	( )
6- The finite strain is the sum of all of the incremental strains.	( )
7- Plasticity is the property of materials that exhibit both viscous and elastic characteristics when undergoing deformation.	( )
8- Isotropic stress is a state where at least one axis has a different magnitude to the other axes.	( )
9- When a force acts perpendicular (or "normal") to the surface of an object, it exerts a shear stress.	( )

Good Luck.....

Dr. Hassan Abbas

باقى الأسئلة على الصفحة الثانية

PART II: STRUCTURAL GEOLOGY (32 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 (5 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*

2. On a listric fault the hanging-wall block rotates around an axis that is .....

a- parallel to the fault surface

b- oblique to the fault surface *(1 mark)*

3. .....is a term used to indicate the direction of movement and rotation that occurred during deformation *(1 mark)*

Vergence - *Simple shear* - *Rake* - *Enveloping surface* *(1 mark)*

4. - In similar folds .....

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

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. *(7marks)*

ANSWER ONLY FOUR OF THE FOLLOWING QUESTIONS:

III. Define and illustrate by drawings:

Overturned folds – Monoclines - Listric faults -

Strike Oblique slip normal fault - Pull-apart basin (5 marks)

IV. Write short notes on field criteria of faults . (5 marks)

V. Using suitable diagrams, explain the Anderson's theory of stress distribution and faulting. (5 marks)

VI. There are several ways in which geologic structures can be classified or subdivided into groups. Discuss. (5 marks)

VII. Explain how folds may develop as an indirect result of shearing stress.

(5 marks)

GOOD LUCK

Prof. Dr. Moustafa M. Youssef

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GOOD LUCK

Prof. Dr. Moustafa M. Youssef