

Assiut University
Faculty of Science
Geology Department



جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

Final Examination

Time: 2 hours	Total marks: 50	Gravity and Magnetic Exploration (G351)	Jan., 2026
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A) Answer the following questions: (*Five marks each*)

1. What are the general guides for the qualitative interpretations of magnetic data?
2. What are the similarities and differences between gravity and magnetic methods?

B) Define only Five of the following (don't answer more than five): (*one mark each*)

- | | |
|----------------------------|----------------|
| 1. Diamagnetic materials | 2. Isostasy |
| 3. IGRF | 4. Inclination |
| 5. Bouguer anomaly | 6. Geoid |
| 7. Magnetic susceptibility | 8. Declination |
| 9. Downward continuation | |

C) True (T) or false (F): (*two marks each*)

1. Eötvös correction is applied to gravity data when a gravimeter is mounted on a moving platform.
2. Magnetic susceptibilities of basic rocks are higher than sedimentary rocks.
3. Lower than average density bodies will cause a negative gravity anomaly.
4. Magnetic field survey should be carried out when there is no magnetic storm.
5. The range of magnetic field strength at the Earth's surface ranges from approximately 60000 nT at the poles to 30000 nT at the Equator.
6. Gradiometer survey will result in a high resolution of data for near surface features.
7. In gravity method, the deeper the body the broader the anomaly
8. Upward continuation suppresses the short wavelength magnetic anomaly
9. Second vertical derivative of magnetic data will define the boundaries of the target
10. Salt dome will result in a gravity low anomaly

D) Provide short answer for only Five of the following (don't answer more than five): (three marks each)

1. The advantages and limitations of using magnetic gradiometer survey
2. Different corrections applied to gravity data
3. Different methods for local-regional separation in gravity
4. The sources of Earth's magnetic field
5. Different sources of changes in Earth's magnetic field.
6. List four different applications of gravity method
7. The idea of ambiguity in gravity data interpretation and how it can be resolved.
8. The difference between forward and inverse modeling for magnetic data

GOOD LUCK

Prof. Dr. Gamal Zidan Abdelaal

	Assiut University- Faculty of Science Second Semester- Final Exam 2025-2026 Geology Department	Program: Geophysics Level : (3) Date: 23/5/2026 Time: 2 h	
Course Title: Seismic Exploration and Earthquake Seismology		Code: 350 G	
Instructors: Prof. Assem El-Haddad and Assoc. Prof. Dr. Mostafa Thabet			
Important:	No. of pages 4	No. Of questions 1	Total Mark:50 degree

First Question: choose the correct answer (a, b, c, or d). (1 mark for each point)

- A wave starting as P, transmitted into the core, and again emerging as P is denoted by.....
 A) PcP B) PPS C) PP D) PKP
- P-wave shadow zone occurs approximately between.....
 A) 0° and 104° B) 105° and 180° C) 104° and 140° D) 140° and 180°
- Which seismic phase is correctly described as a wave starting as S, transmitted into the outer core, once reflected inside the outer core boundary, and emerging as S?
 A) SKIKP B) SKKS C) SKJKS D) SKS
- Which body wave produces Love waves when reaching the surface?
 A) P-waves only B) SV-waves only C) SH-waves only D) Both P and S waves
- Head waves are generated when incidence angle equals.....
 A) 90 degrees B) 45 degrees C) 0 degrees D) The critical angle
- In focal mechanism analysis, upward polarity indicates.....
 A) Compression B) Dilatation C) Tension D) Shear
- A "beach ball" diagram with all four quadrants equally compressed and dilated indicates.....
 A) Pure strike-slip fault B) Pure thrust fault C) Pure normal fault D) No fault motion
- Dynamic compaction is an engineering solution used to.....
 A) Prevent liquefaction occurrences B) Increase liquefaction potential
 C) Increase pore pressure D) Decrease soil density
- Nyquist frequency (folding frequency) equals.....
 A) Twice the sampling frequency B) The wave frequency
 C) Half of the sampling frequency D) The natural frequency
- Fourier analyses consist of real and imaginary parts divided by the.....
 A) Predominant frequency B) Nyquist frequency
 C) Cut-off frequency D) Natural frequency
- The unit of dynamic range is.....
 A) Hertz B) Decibel (dB) C) Meter per second D) Second
- Velocity is the time derivative of.....
 A) Displacement B) Acceleration C) Jerk D) Strain
- Which instrument is used to convert between displacement, velocity, and acceleration?
 A) Filter B) Analog-to-digital converter C) Amplifier D) Integrator/differentiator circuits

14. Predominant frequency is the frequency that corresponds to.....

- A) Highest Fourier amplitude B) Lowest Fourier amplitude C) Nyquist frequency D) Zero amplitude

15. Attenuation is defined as.....

- A) Increase in amplitude with distance B) Decrease in amplitude and change in frequency content with distance
C) Constant amplitude with distance D) Only frequency change

16. The turning point (deepest point) of a seismic ray occurs when.....

- A) $\sin(i) = \text{maximum}$ B) $\sin(i) = 1$ ($i = 90^\circ$) C) $\sin(i) = 0$ D) $v = \text{minimum}$

17. Which modulus represents resistance to compression?

- a) Shear modulus b) Young's modulus c) Bulk modulus d) Poisson's ratio

18. What is an air wave?

- a) A P-wave traveling through rock b) Sound wave traveling through air
c) A type of surface wave d) A shear wave in the atmosphere

19. Typical velocity of an air wave is about.....

- a) 1500 m/s b) 500 m/s c) 330 m/s d) 100 m/s

20. A 60 dB dynamic range corresponds to an amplitude ratio of approximately.....

- a) 10:1 b) 100:1 c) 1000:1 d) 1,000,000:1

21. The critical angle (i_c) is given by.....

- a) $\sin^{-1}(V_1/V_2)$ for $V_2 > V_1$ b) $\sin^{-1}(V_2/V_1)$ for $V_1 > V_2$ c) $\cos^{-1}(V_1/V_2)$ d) $\tan^{-1}(V_2/V_1)$

22. The crossover distance (X_c) is where.....

- a) Direct wave and refracted wave arrive together b) Direct wave and reflected wave arrive together
c) P-wave and S-wave arrive together d) Air wave and ground wave arrive together

23. For a given depth, increasing velocity contrast (V_2/V_1) will.....

- a) Decrease crossover distance b) Increase crossover distance
c) Not affect crossover distance d) Double the depth

24. Rule of thumb for geophone spread length should be.....

- a) Equal to depth of interest b) Twice the depth
c) 4–5 times the depth of interest d) 10 times the depth

25. In a downdip shot, apparent velocity is.....

- a) Greater than true velocity b) Less than true velocity
c) Equal to true velocity d) Zero

26. In non-planar refractor interfaces, travel time branches are.....

- a) Always straight lines b) Identical to planar case
c) Parallel to direct wave d) No longer straight lines

27. Asymmetrical travel time curves indicate.....

- a) Dipping layers b) Horizontal layers c) No refractor d) Air wave interference

28. In the delay time method, depth is calculated beneath.....

- a) Each geophone b) Only the source c) Only the farthest geophone d) The center point

29. Difference in apparent velocities from reversed shots indicates.....

- a) Horizontal layers b) Dip direction c) Air wave d) Noise

△ Remember ■ Understand ● Apply ◇ Analysis * Evaluate ○ Create

30. A velocity inversion can lead to.....
 a) Overestimation of depth b) Correct velocity determination c) Errors in depth calculation d) No effect
31. Depth to refractor (z) from intercept time.....
 a) $z = (t_i V_1) / (2 \cos i_c)$ b) $z = t_i V_1 / (2 \cos i_c)$ c) $z = t_i V_2$ d) $z = X_c / 2$
32. Crossover distance X_c is given by.....
 a) $X_c = 2z \tan i_c$ b) $X_c = V_1 t_i$ c) $X_c = z / \tan i_c$ d) $X_c = 2z \tan i_c$
33. If $V_2 < V_1$, the energy refracts.....
 a) Away from normal b) Toward the normal c) Along the interface d) Back to source
34. In the presence of a hidden layer, calculated depths are.....
 a) Correct b) Zero c) Underestimated d) Overestimated
35. The formula to compute the radial component (R) from NS and EW is.....
 a) $R = NS \cdot \cos \theta + EW \cdot \sin \theta$ b) $R = NS \cdot \sin \theta + EW \cdot \cos \theta$ c) $R = NS \cdot \cos \theta - EW \cdot \sin \theta$ d) $R = NS \cdot \tan \theta + EW \cdot \cot \theta$
36. If the sampling theorem is satisfied, a continuous signal can be exactly reconstructed from samples when.....
 a) $f_s \geq 2 \times f_{max}$ b) $f_s > 2 \times f_{max}$ c) $f_s = f_{max}$ d) $f_s < f_{max}$
37. A low-pass filter is also known as a.....
 a) Low-cut b) High-cut c) Band-pass d) Notch
38. If a seismic wave travels from a high-impedance layer to a low-impedance layer, the amplitude.....
 a) Decreases b) Increases c) Stays the same d) Reverses polarity
39. The energy per unit area of a seismic wave is proportional to.....
 a) $\rho V / A^2$ b) $\rho / V f A$ c) $\rho V f A^2$ d) $f A / \rho V$
40. For a vertically incident S-wave, the resonant amplification factor for a layer over bedrock is approximately.....
 a) $\rho_2 V_2 / \rho_1 V_1$ b) $\rho_1 V_1 / \rho_2 V_2$ c) $(\rho_1 V_1 \times \rho_2 V_2)^{0.5}$ d) 1.0
41. When liquefaction occurs, the effective stress becomes.....
 a) Maximum b) Zero c) Negative d) Doubled
42. The depth below which liquefaction is rarely observed is approximately.....
 a) 5 m b) 10 m c) 20 m d) 50 m
43. In a saturated soil deposit, water is.....
 a) Compressible b) Less dense than soil c) Incompressible d) Always moving
44. In a homogeneous medium, a wavefront is.....
 a) Planar b) Elliptical c) Irregular d) Spherical
45. The amplitude of surface waves decreases with depth because.....
 a) Energy is trapped near the surface b) They convert to body waves
 c) Temperature increases d) Density decreases
46. The fundamental resonance period (T) of a layer is.....
 a) $4H/V_s$ b) $V_s/4H$ c) H/V_s d) V_s/H
47. In a pure strike-slip focal mechanism, the nodal planes are.....
 a) Horizontal b) Vertical c) Dipping 45° d) Dipping 60°

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48. A deep earthquake (≥ 300 km) will have phases like.....

- a) pP and sP b) Only PP c) Only SS d) No body waves

49. The time difference between P and pP is used to determine.....

- a) Focal depth b) Magnitude c) Fault orientation d) Site response

50. The sampling theorem requires $f_s \geq 2f_{max}$ to avoid.....

- a) Aliasing b) Baseline shift c) Attenuation d) Dispersion

End of Exam

Best Wishes Prof. Dr. Assem El-Haddad
Assoc. Prof. Dr. Mostafa Thabet

Δ Remember ■ Understand ● Apply ◊ Analysis *Evaluate ○ Create

	Assiut University- Faculty of Science Second Semester- Final Exam 2025-2026 Geology Department	Level : (3) Date: 31/May/2026 Time: 3h	 كلية العلوم جامعة أسيوط
Course Title : Rock Mechanics and Structural Geology		Code: 340G	
Instructors: Prof. Dr. Moustafa M. Youssef & Dr. Hassan Abbas			
Important:	No. of pages 3	No. Of questions 10	Total Mark: 50 degree

PART I : ROCK MECHANICS (17 Marks)

I) Label the correct sentence with true (T) and the incorrect one with false (F): (5 Marks)

- 1- Dilation is a variety of strain characterized by a change in the form or shape of a rock, while its volume remains constant.
- 2- According to the standard geological sign convention, compressive normal stresses are regarded as positive.
- 3- A "stress trajectory" is a line that connects the orientation of principal stress directions at several points within a body.
- 4- Rock mechanics is defined strictly as an applied science and does not include theoretical analysis of rock mass behavior.
- 5- Effective stress is reduced by pore fluid pressure.

ANSWER ONLY THREE OF THE FOLLOWING (12 Marks)

- II) List the four characteristics of homogeneous strain. (4M)
- III) Define stress and explain how it differs from simple pressure in a geological context. Discuss why stress is considered a more complex quantity. (4M)
- IV) Define elastic strain and plastic strain. Provide a geological example of each. (4M)
- V) Explain longitudinal and Angular strain. (4M)

PART II STRUCTURAL GEOLOGY (33 Marks)

I. CHOOSE THE CORRECT WORDS TO COMPLETE THE FOLLOWING PHRASES AND THEN REWRITE IN YOUR ANSWER PAPER: (12 MARKS)

1. 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 d- of no orientation
2. In faulting, the horizontal component of dip separation is called
a- Throw b- Heave c- Dip slip d- stratigraphic separation

باقي الأسئلة على الصفحة التالية

	Assiut University- Faculty of Science Second Semester- Final Exam 2025-2026 Geology Department	Level : (3) Date: 31/May/2026 Time: 3h	
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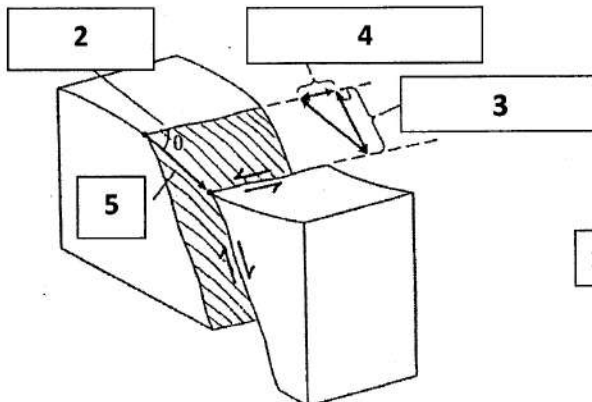
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باقى الأسئلة على الصفحة التالية

3. In similar folds the layer thickness parallel to the axial surface
 a- Increases b - remains constant
 c - decreases d- changes irregularly
4. Kink folds are small folds that are characterized by
 a- irregular and isolated fold structures b - straight limbs and sharp hinges
 c-with only one tilted limb d- wide crestal areas
5. Large-scale recumbent folds often associated with thrust faulting; they are called
 a- Thrust sheets b - nappes c - Duplex d- Orogene
6. is a fault rock consisting of loose or loosely bound angular rock fragments often in a gouge matrix.
 a - Mylonite b- Fault gouge c- Fault breccias d -Pseudotachylite
7. Geologic structure formed before full lithification but after initial deposition is called:
 a- syn-formational b-post-formational
 c- penetrative d- pene-contemporaneous
8. Examine the following figure and then choose the proper word(s) corresponding to the numbered boxes



- 1) The fault is:
 a - oblique normal fault
 b- Listric fault
 c- Oblique-slip normal fault
 d- strike slip fault

- 2) a- Attitude angle b- Rake angle c- Dip angle d- Hade angle
 3) a- Net slip b- Fault slip c- dip-slip component d- Throw
 4) a- Strike-slip component b- Hade c- stratigraphic separation d- Net slip
 5) a-Dip-slip component b- Throw c-Vertical separation d- Net slip

باقى الأسئلة على الصفحة التالية

ANSWER ONLY THREE OF THE FOLLOWING QUESTIONS (21Marks)

Try to Illustrate your answers with suitable drawings when possible

وضح اجابتك بالرسم كلما أمكن

- 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. **(7 Marks)**
- III. Using suitable diagrams, explain the Anderson's theory of stress distribution and faulting. **(7 Marks)**
- IV. Explain how folds may develop as a direct result of horizontal compressive stress and the main characteristics of the resulted fold belt. **(7 Marks)**
- V. There are several ways in which geologic structures can be classified or subdivided into groups. Discuss. **(7 Marks)**

End of Exam

Best Wishes and GOOD LUCK

Dr. Hassan Abbas & Prof. Dr. Moustafa M. Youssef

	Assiut University- Faculty of Science Frist Semester- Final Exam 2025-2026 Geology Department	Program: Geophysics Level: (3) Date: 26/12/2025 Time: 2 h	
Course Title: Earthquake Seismology and Seismic Exploration		Code: G350	
Instructors: Prof. Assem El-Haddad		Assoc. Prof. Mostafa Thabet	
Important:	No. of pages 2	No. Of questions 2	Total Mark:50 degree

First Question: choose the correct answer (a, b, or c). Make a table (numbers and answers) (40 marks)

- The bulk modulus of a material describes its.....
a) resistance to compression. b) resistance to shear deformation. c) overall density.
- The relationship between a material's compressibility and its p-wave velocity is.....
a) direct relation. b) inverse relation. c) no relation.
- When a seismic wave encounters a boundary where velocity changes (a discontinuity), the energy is.....
a) entirely reflected. b) entirely refracted. c) partly reflected and partly refracted.
- In a homogeneous medium, a wavefront generated from a point source will be.....
a) planar. b) spherical. c) distorted.
- Huygen's principle states that every point on a wavefront can be considered a new.....
a) receiver of energy. b) point of reflection. c) point source for waves.
- If seismic velocity increases with depth, as the incidence angle increases, the refraction angle.....
a) decreases. b) increases. c) remains constant.
- If the P-wave velocity of the upper layer is 300 m/s and the bottom layer is 700 m/s, the critical angle is approximately.....
a) 20 degrees. b) 25 degrees. c) 30 degrees.
- Beyond the crossover distance, the first seismic arrivals are typically.....
a) direct waves. b) reflected waves. c) head waves.
- On a dipping layer, the crossover distance and intercept time measured from the..... side are larger.
a) downdip b) updip c) both equal.
- For forward and reverse shots over the same dipping interface, the reciprocal times should be.....
a) different. b) similar. c) near zero.
- The presence of an undetected low-velocity layer (velocity inversion) typically leads to.....
a) overestimates depth. b) accurate depth. c) no effect.
- A key requirement for the delay time method is having refracted arrivals at each geophone from.....
a) same directions. b) opposite directions. c) a single, deep source.
- An air wave is a sound wave that travels from the source to geophones through.....
a) the air. b) the groundwater table. c) surface wave.
- "Phantoming" in refraction refers to.....
a) ghost reflection. b) extrapolating a travel-time. c) filtering out air waves.
- For reflection interpretation, the primary data required are.....
a) first arrival times. b) direct wave velocity. c) travel times and amplitudes of reflections.
- For a seismic wave incident on a boundary, if the angle of incidence is less than the critical angle, the result is.....
a) total reflection. b) refraction and reflection. c) no energy transmission.
- In seismic reflection processing, "fold" refers to the number of.....
a) layers in the subsurface. b) sources used in the survey. c) traces in a single CMP gather.
- The observed seismic trace can be mathematically described as the of the earth's reflectivity series with the source wavelet. a) convolution b) deconvolution c) differentiation
- Deconvolution is the process that aims to remove the wavelet effect from the seismogram.
a) forward b) stacking c) inverse
- The vertical resolution of a seismic reflection section is fundamentally limited by the.....
a) geophone spacing. b) wavelength of the source pulse. c) depth of the target.

21. Most earthquakes primarily occur along faults in the
a) lower mantle b) upper 25 miles of the earth's surface c) outer core-mantle boundary
22. The Love wave originates from a) P-waves b) S-waves c) Rayleigh waves
23. Head waves are generated by incidence with the at an interface.
a) smallest or critical angle b) largest possible angle c) a 90-degree angle
24. The P-wave that reflects once off the Earth's outer surface denoted as
a) PPP b) PP c) PcP
25. Which of these waves is reflected off the *outside* interface of the outer core?
a) PcP b) PKiKP c) SKS
26. A wave starts as an S-wave, enters the outer core, reflects once off the inner core boundary, and emerges as an S-wave. It is called..... a) SKKP b) SKKS c) SS
27. The S-wave shadow zone observed between angular distances.....
a) 0 and 105 degrees b) 105 and 180 degrees c) 104 and 140 degrees
28. The natural frequency of a soil layer is calculated as.....
a) Layer thickness divided by shear wave velocity. b) Shear wave velocity divided by four times the layer thickness.
c) Shear wave velocity multiplied by the layer thickness.
29. In Fourier analysis, the real and imaginary parts are divided by frequency.
a) sampling. b) angular. c) Nyquist.
30. In a focal mechanism solution, one nodal plane is the fault plane. The other is
a) auxiliary plane. b) horizontal plane. c) plane of compression.
31. A station recording a downward P-wave polarity is on the side of the fault experiencing.....force at the hypocenter. a) Dilatational. b) Compressional c) neutral.
32. Resonance effects in sediment layers are caused by the
a) direct waves. b) Trapped waves. c) surface waves.
33. Acceleration is the time derivative of..... a) Displacement. b) Velocity. c) Frequency.
34. Seismic station transparency requires that the base has.....
a) high impedance contrast. b) negligible impedance change. c) large surface area.
35. Seismic attenuation refers to the
a) change in wave direction. b) increase in ground motion. c) decrease in ground motion.
36. The point on the Earth's surface directly above the hypocenter is called the.....
a) Epicenter. b) Fault trace. c) Seismic focus.
37. Liquefaction is a loss of soil strength due to.....
a) Permanent compaction. b) excess of pore water pressure. c) weathering.
38. The preferred uniform measure of an earthquake's released strain energy is.....
a) Moment Magnitude. b) Surface Wave Magnitude. c) Local Magnitude.
39. The seismic moment is a measure of the
a) energy released. b) moment of the fault forces. c) average slip rate on a fault.
40. Seismic amplification is the increasing modification of bedrock motion caused by.....
a) The fault rupture process. b) Overlying unconsolidated materials. c) Topographic ridges.

Second Question: Explain the following two points in detail. (10 marks)

- a) Derive the equations of impedance change between two horizontal layers.
- b) In a refraction method, derive the equations to calculate the direct arrivals from first and second layers for a horizontal two-layer medium.

End of Exam

Best Wishes Prof. Assem El-Haddad
Assoc. Prof. Mostafa Thabet



Subject: Depositional Sedimentary Environments and Sedimentary Basins (G335)

Answer the following questions:

(50 Marks)

1. *The interpretation of ancient sedimentary environments needs some important features, write on these mentioning their common classification.* (8 Marks)
2. *Compare between the following illustrating your answer with drawings:* (4 Marks)
 - *Pre-depositional and syn-depositional sedimentary basins.*
 - *Delta plain and prodelta sediments*
3. *Write brief notes on the stages of the Wilson Cycle.* (6 Marks)
4. *Answer only ONE question of the following:* (10 Marks)
 - A- *The sources of sediments in different sedimentary basins are varied; write notes on the origin of sediments in rift, intracratonic, trench, transtensional and forearc basins.*
 - B- *How are sedimentary basins formed (subsidence mechanisms)?*
5. *Define the following:* (2 Marks)
 - *Staffed sedimentary basin*
 - *Alluvial fans*
6. *Modern sedimentary environments caused worldwide environmental hazards; mention four of these phenomena.* (4 Marks)
7. *Write short notes on the main types of sedimentary basin subsidence.* (5 Marks)



8. *Important information's are gained from the interpretation of ancient sedimentary environments, mention these. (4 Marks)*
9. *The transition from fining upwards to coarsening upwards cycles or the reverse is related to some geological parameters, mention these. (3 Marks)*
10. *The sedimentary basins are important sites for hydrocarbon accumulations; mention the main sedimentary basins of the Northwestern Desert and the Nile Valley of Egypt. (4 Marks)*

Good luck

Ezzat A. Ahmed

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الثالث بكلية العلوم شعبة الجيولوجيا
لمادة: حفريات دقيقة و جيولوجيا تاريخية (315 ج)

الزمن: ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2026/2025 م

ملحوظة: الامتحان يتكون من أربع صفحات

The first question (13 Marks): Choose the correct answer

1- What supercontinent composed of all continental crust was produced by the end of the Precambrian?

- a- Pangaea b- Laurentia c- Gondwanaland d- Rodinia

2- 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

3- The smallest formal unit of the Chronostratigraphy.

- a- Peroid b- Stage c- Series d- age

4- The alternating reversals of Earth's magnetic field throughout history have been recorded in sea floor rocks in a particular pattern.

- a- the pattern of alternating reversals indicates sea floor spreading
b- The pattern of alternating reversals indicates that the sea floor is static
c- The pattern of alternating reversal indicates that the sea level has risen due to plate subduction
d- This does not support plate tectonics

5- How does an ocean basin form?

- a- Continental lithosphere becomes so dense that it sink.
b- Meteorite impacts cause huge craters that are the precursors to oceans.
c- Heat and volcanism from Earth's mantle can cause granitic continental crust to change into basaltic ocean crust.
d- A continental plate is pulled apart and seafloor spreading creates ocean lithosphere in the gap left between the pieces.

6- The Calcite Compensation Depth (CCD) is the depth in the ocean where Equals

- a- acidity - dissolution potential b- temperature - the dissolution point
- c- carbonate saturation - carbonate under saturation
- d- carbonate dissolution – carbonate supply

7- In seawater, carbon dioxide is added mostly by, oxygen is added mostly by.....

- a- respiration of marine organisms; photosynthesis
- b- photosynthesis; wave action
- c- wave action; respiration of marine organisms
- d- volcanic activity; the atmosphere

8- What causes the greenhouse effect?

- a- Sunlight is absorbed by the Earth's surface, reradiated as infrared energy, and absorbed by atmospheric gases
- b- Greenhouse gasses lead to polar ice cap melting, making the Earth warmer
- c- The oceans absorb solar energy and trap heat, making the Earth warmer
- d- Atmospheric gasses, such as water and carbon dioxide, absorb sunlight causing the atmosphere to heat up

9- Remnants of the oldest conodont faunas consist primarily of simple.

- a- Coniform b- Ramiform c- Pectiniform d- Plateform

10- How many epochs fall in the Quaternary time?

- a-three b-two c- four d- five

11- Radiolarians are characterized by

- a- being mostly planktonic b- having a calcareous shell
- c- being only autotrophs d- having two flagella

12- If you were to correlate between outcrops using fossils content, you would be doing..... correlation.

- a- isotope stratigraphic b- chronostratigraphic
- c- biostratigraphic d- lithostratigraphic

13- The first form of life on the Earth.....

- a- Cyanobacteria b- Angiosperms c- Gymnosperms d- Spores

- 14- Tillite is formed from..... deposits**
a- lake b- river c- marine d- glacial
- 15- The first form of vertebrate life on the Earth**
a- jawless Fish b- armored Fish c- cartilage fish d- bony fish
- 16- The group of marine invertebrates that dominate the fossil record of the early Paleozoic are the**
a- rugose corals b- fusulinids c- trilobites d- none of these
- 17- The first vertebrates to invade the land were the**
a- mammals b- reptiles c- insects d- amphibians
- 18- Which of the following is a method of correlation?**
a- physical continuity b- similarity of rock types
c- similar fossil assemblages d- all of these can be used for correlation
- 19- The largest of the early Paleozoic continents was which included all of the modern continents of the southern hemisphere.**
a- Baltica b- Gondwanaland c- Laurentia d- Siberia
- 20- Land plants appeared during the Period?**
a- Cambrian b- Silurian c- Triassic d- Permian
- 21- Criteria used in classification of spore/pollen grains are:**
a- type of aperture b- grain shape c- grain sculpture d- grain size e- all of them
- 22- Which of the following has quadricolpate:**
a- acritarchs b- dinoflagellates c- prasinophytes d- chitinozoa
- 23- Fossil and living dinoflagellates are now classified according to:**
a- International Code of Botanical Nomenclature (ICBN) as algae
b- International Code of Zoological Nomenclature (ICZN) as protozoans
c- both (ICBN) and (ICZN) d- none of them
- 24- Informal groupings (classification) of acritarchs have been established on:**
a- wall structure and morphology of vesicle b- type of excystment opening
c- presence or absence of processes d- ornamentation e- all of them
- 25- The outer wall layer "Exine" of pollen grains consists of:**
a- Intine b- Ectexine c- Endexine d- all of them

26- In an idealized life cycle of dinoflagellate, the stage of combined sexual and asexual reproductions is represented by:

- a- motile diploid stage b- motile haploid c- motile diploid d- all of them

The second question (10 Marks)

1- Discriminate between the Hercynian and the Laramide Orogenies.

(3 Marks)

2- Discuss the effect of salinity and alkalinity in the distribution of foraminifera.

(3 Marks)

3- Compare between the Radiolaria and benthonic foraminifera in: Systematic position - environmental habitat - shell walls – shell shape - mode of life

(4 Marks)

The third question (10 Marks):

1- Tabulate the rock-building fossils throughout the Paleozoic Era. (4 Marks)

2- Write the derivation of Three only of the following: (3 Marks)

- a- Archean b- Jurassic c- Triassic d- Carboniferous

3- Write an essay on the agglutinated foraminifera. (4 Marks)

The fourth question (5 Marks)

1- Give reasons for three only of the following: (3 Marks)

- a- The formation of Atlantic Ocean
b- The closure of Iapetus Ocean
c- The Formation of Indian Ocean
d- The formation of banded iron during the Proterozoic

2- Explain the alteration of generation in the foraminiferal tests (shells).

(2 Marks)

The fifth question (12 Marks): Write on the following

1- Definition, taxonomy, morphology, and ecology of prasinophytes and chitinozoa.

2- Standard palynological processing technique and safety precautions in lab.

تمت الأسئلة مع أطيب الأمنيات بالتوفيق والنجاح

ا.د/ عمرو سعيد ضيف

ا.د/ ناجح عبدالرحمن عبيدالله

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريرى للمستوى الرابع بكلية العلوم
شعب الجيولوجيا والجيوفيزياء والجيولوجيا كيمياء

المادة: جيولوجيا الحقل (306 ج) Field Geology (306 G)

الفصل الدراسى الثانى 2025/2026م
الدرجة: 50 درجة
الزمن: ساعتان

ملحوظة: الامتحان يتكون من صفحتان

First question: (10 Marks)

I- Choose the correct answer (5 Marks)

- 1- A sedimentary rock made up of biochemically precipitated silica is called
a/an
A- limestone B- chert C- evaporates D- halite
- 2- The term Aeolian refers to transport and deposited by
A- wind B- streams C- ocean waves D- lakes
- 3- Which of the following lists is the correct sequence in the formation of sedimentary rocks?
A- erosion, weathering, lithification, deposition
B- weathering, lithification, erosion, deposition
C- weathering, erosion, deposition, lithification
D- erosion, lithification, weathering, deposition
- 4- A short time break or a change in the sediment type in a depositional environment results in the creation of between individual beds.
A- a hiatus B- a bedding plane
C- a graded bed D- an intrusive contact
- 5- Which of the following features associated with sedimentary rocks does not belong with the others?
A- Bedding plane B- Nonconformity
C- Angular unconformity D- Disconformity
- 6- A change in sediment type in a depositional environment results in the creation of between individual beds.
A- an unconformity B- a graded bed
C- a bedding plane D- an intrusive contact
- 7- The layered arrangement in sedimentary rocks is called.....
A- deformation B- stratification C- cross bedding D- all of these
- 8- The paraconformity can be detected by.....
A- paleosol B- erosion surface
C- break in the fossil record D- basal conglomerate

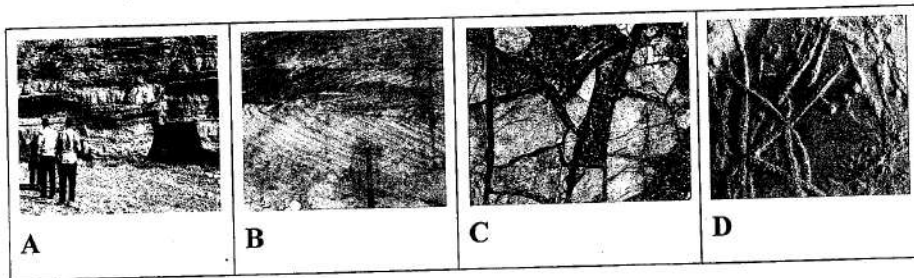
9- Lamination is the structure formed in rocks.
A- shale B- sandstone C- conglomerate D- gypsum

10- The bio-erosion which are formed by the action of an organism called Structure.
A- stromatolite B- bioturbation C- boring D- burrow

II- Write notes on general structures of lavas, Batholiths, Diapers. (5 Marks)

Second question: (10 Marks)

Discuss the geologic sedimentary structure of the showing figures; illustrate your answer by drawing.



Third question: (10 Marks)

I- Write on the boundaries (contact) between the geologic rock units. (5 Marks)

II- Define the following terms: (5 Marks)

Flame structure - Stylolite - Basal conglomerates -
Fault breccia - Paraconformity

Fourth question: (10 Marks)

Write in detail about the types of caldera and their formation.

Fifth question: (10 Marks)

Mention the types of volcanoes with using drawing.

With our best wishes

Prof. Dr. Ali A. Khudier

Prof. Dr. Nageh A. Obaidalla

	Assiut University – Faculty of Science Second Semester – Final Exam 2025-2026 Geology Department	Program: Geology Date: 14/5/2026 Time: 3h	
Course Title: Micropalaeontology & Historical Geology		Code: G315	
Instructors: Prof. Dr. Magdy S. Mahmoud & Prof. Dr. Nageh A. Obaidala			
Important:	No. of pages: 2	No. of questions: 4	Total Mark: 50 degree

Answer the following questions:

Q1: Choose if the following statements are true (√) or false (X) (10 degrees; one degree each)

- 1- Historical geology is interested in studying past events.
- 2- Reflected-light microscopes reflect details of external and internal structure and ornaments of palynomorphs.
- 3- Reducing acidic environments are the best for palynomorphs preservation.
- 4- The problems encountered by palynologists working on palynomorphs depend on the state of preservation and the age of the material under investigation.
- 5- Natural selection is the mechanism that accounts for evolution.
- 6- Very small scale volcanic eruptions can cause mass extinctions.
- 7- Chemical effects are the most destructive agents in the degradation of pollen and spores.
- 8- Spores have pores but pollen grains have trilete marks.
- 9- The rocks representing the last 544 million years of the Earth's history, which contain abundant fossils of many organisms, are of Paleozoic age.
- 10- Dinoflagellates are applied in retrieving past climate changes.

Q2: Write briefly on the following: (15 degrees; 5 degrees each)

- 1- Effects of transport on palynomorphs.
- 2- Symmetry in pollen and spore.
- 3- Standard palynological processing technique for small palynomorphs.

Q3: Choose the correct answer : (5 degrees; 0.5 degrees each)

- 1- Most microfossils are
Prokaryotic Unicellular Multicellular none of these
- 2- The shell of a coccolith is made of
Silica calcium carbonate. calcium sulfate. none of these
- 3- The shell of a conodont is made of
Silica calcium carbonate. calcium phosphate. none of these
- 4- The shell of a fresh water foraminifera is made of
chitinous calcium carbonate. calcium sulfate. Silica
- 5- The wall structure of planktonic foraminifera are made of
agglutinated calcareous. siliceous all of these
- 6- The marine depth which receives non-sufficient light for photosynthesis is known by
Dysphotic photic aphotic light zone
- 7- Benthonic foraminifera are useful in studies.
Paleoenvironmental paleopathymetry paleoceanography all of these
- 8- Normal sea water has
alkaline acidic neutral none of these

SEE BACK



- 9- CaCO_3 more soluble in water.
cold warm temperate all of these
- 10- Stagnant water contains
low oxygen high oxygen moderate oxygen all of these

Q4: Answer the following questions:

(20 degrees; 5 degrees each)

- 1- Discuss the effect of salinity and alkalinity in the distribution of foraminifera.
- 2- Compare between the Planktonic and benthonic foraminifera in: shape of chambers - environmental habitat - shell walls – shell shape - mode of life.
- 3- Explain the alteration of generation in the foraminiferal tests (shells).
- 4- Write an essay on the agglutinated foraminifera.

_____ إنتهت الأسئلة مع أطيب الأمنيات بالتوفيق _____

Second semester final exam in metamorphic rocks (G336)

Students: 3rd year geology

I- Choose the correct answer A, B, C or D and Comment (2 marks for each): (50 Marks)

1. Differences between greenschist facies and eclogite facies in.....
A- Temperature B- Pressure C- Parent rocks D- Temperature and pressure
2. Index minerals in low-grade metamorphic rocks are.....
A- Zosite- epidote B- Lawsonite-glaucophane
C- Oligoclase-hornblende D- Cordierite-staurolite
3. Migmatite is a rock found in
A- Medium-high grades B- High-grade only
C- Medium-grade only D- Low-medium grades
4. In eclogite facies, garnet minerals are.....
A- The same type B- Different type
C- Sometimes same and sometimes different D- Not of all
5. Differences between sanidinite hornfels facies and zeolite facies
A- Type of metamorphism B- Degree of metamorphism
C- Parent rocks D- All
6. Grade of metamorphism are generally differences in
A- T/P conditions B- Mineral paragenesis
C- Number and type of facies D- All
7. Differences between the metatexis and diatexis.....
A- Degree of melting B- Minerals assemblage C- T/P conditions D- Not of all
8. Foliation textures are usually associated with.....
A- Thermal metamorphic rocks B- Dynamic metamorphic rocks
C- Regional metamorphic rocks D- All
9. The change of ultramafic rocks to serpentinites and their derivative is named
A- Isochemical metamorphism B- Allochemical metamorphism
C- Regional metamorphism D- All
10. Calculate the temperature of country rocks due to intrusion of syenite melt at depth 2km at.....
A- Contact B- 1/10D C- 1/2D D- 2D
11. The grade of metamorphism in rocks surrounded to the intermediate magma at depth at distance
A- 1/5D B- 1/2D C- 3/4D D- 1D
12. The differences between mylonite of basaltic rocks and mylonite of granitic rocks in.....
A- Type of metamorphism B- Degree of metamorphism
C- Minerals composition D- Parent rocks

13. The differences between metamorphic layers and sedimentary layers.....
 A- Thickness B- Mineral abundance C- Type of minerals D- T/P conditions
14. The differences between retrograde and prograde metamorphism
 A- Degree of devolatilization B- Tectonic setting
 C- Abundance of fluid content D- T/P conditions
15. Boundaries between the different metamorphic facies are transitional due to
 A- Differences in mineral composition B- Type of fluid
 C- Metamorphic reaction D- All
16. Anatexis process present in.....
 A- High-grade metamorphic regions
 B- Represent the transition between metamorphism and magmatism
 C- Crustal reworking on convergent plate boundaries
 D- All
17. Differences between chlorite schist and garnet schist are in
 A- Mineral composition only B- Degree of metamorphism only
 C- Parent rock D- All
18. Schlieren texture like.....
 A- Sausage – like folded veins B- Streaky texture
 C- Diffuse, foggy appearance D- Well-later or banded (light and dark boundaries)
19. Metamorphism most often occur.....
 A- Deep within earth B- At surface of earth
 C- At shallow depths D- At all
20. During high grade metamorphism, the parent rock transform into a new rock whereby its original parent rock is.....
 A- Difficult to identify B- Easy to identify
 C- Sometimes identify D- None identify
21. Metamorphic process present at depth
 A- 10-30 km B- 50-100 km C- 5-10 km D- 50-70 km
22. The leucosomes of migmatite are examples of
 A- Primary magma B- Primitive magma
 C- Parental magma D- Derivative magma
23. Variation in temperature with depth in crust is
 A- Systematic B- Irregular C- regular D- Not of all
24. Heat necessary during metamorphism comes from
 A- Progressive depths below the earth-surface
 B- During the contact metamorphism
 C- Body force
 D- All
25. Proportion of matrix in protomylonite
 A- 1-10% B- 90-100% C- 10-50% D- 50-70%

امتحان الشفوي عقب امتحان النظري مباشرة (مكتب أ.د. حسين عزيز محمد حجازي)

تمنياتي بالتوفيق والنجاح



Principles of Petrology (G324) for 3^d level student

Time allowed 3 H.

6,6,2026

PART I IGNEOUS & METAMORPHIC ROCKS

(Total 32 mark)

Write short notes on only 4 from the following: (32 Marks)

- 1-Gabbro family (8 Marks)
- 2-Forms of plutonic rocks (8 Marks)
- 3-Classification of igneous rocks according to Streckesin, 1976 (8 Marks)
- 4-Textures of regional metamorphism (8 Marks)
- 5-Agent of metamorphism (8 Marks)

PART II SEDIMENTARY ROCKS

(Total 18 mark)

(Illustrate your answer by diagrams)

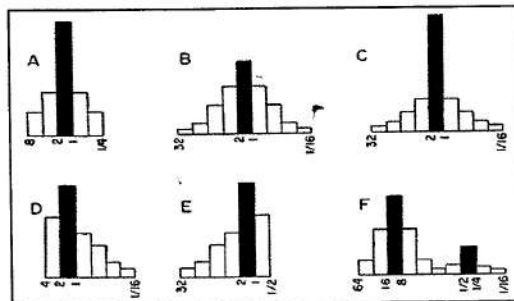
1-Write about Four questions ONLY of the following: (2 mark for each question)

- 1- Cross Bedding, Mud Cracks and Ripples Marks. What is their significance?
- 2- The difference between Roundness and Sphericity of grain.
- 3- Petrographic classification of Sandstones.
- 4- Surface textures of clastic quartz grains
- 5- Petrographic classification of limestone.

II- Complete the Following

(2 mark for each question)

- 6- Matrix is fine material which fills the among the particles, whereas, Cement is post- depositional in the among the grains and matrix.
- 7- The different methods of graphic representation of grain size of clastic sediments include and on both and
- 8- The minor or micro relief features of the quartz grains are termed , such as , and
- 9- The boundaries between the crystal elements of non-clastic textures may be , and
- 10- The following figure shows different histograms of some sedimentary aggregates. Describe and Compare between these histograms (A, B, C, D, E and F). (2 mark)



	Assiut University- Faculty of Science Second Semester-Final Exam 2025-2026 Geology Department	Program: Chemistry / Geology Level: (3) Date: 2/6/2026 Time: 2 h	 كلية العلوم جامعة أسيوط
Course Title: Depositional Sedimentary Environments and Sedimentary Basins		Code: G 335	
Instructor: Prof Dr. Ezzat A. Ahmed			
Important:	No. of pages 1	No. of questions 9	Total Mark: 50 degree

Answer the following questions:

1. Write brief notes on the main characteristics of the meandering river system. (5 Marks)
2. Aeolian sediments are transported in different ways, write on these. (6 Marks)
3. Many processes are responsible for the formation of sedimentary basins, mention these. (5 Marks)
4. Answer only ONE question of the following: (10 Marks)
 - A- The depositional environments are affected mainly by specific parameters, mention these.
 - B- Mention the main types and characteristics of delta subenvironments.
5. Rift valley is formed due to successive stages, explain these illustrating your answer with drawings. (6 Marks)
6. Write on the main characteristics of neritic sediments, illustrate your answer with examples from the sedimentary package of Egypt. (5 Marks)
7. Sedimentary cycle interval is defined by the variation of some features, mention these. (3 Marks)
8. Some types of sedimentary basins are associated with subduction plate boundaries, mention these. (4 Marks)
9. Define the following: (6 Marks)
 - Hurricanes
 - Strongly deformed sedimentary basins
 - Pull-apart basins

Good luck

Ezzat A. Ahmed