(١)

Assiut University Faculty of Science Geology Department		June, 2015 Time: 2 hours

Final Exam on Principles of Geophysics (250 G)

Answer the following questions:- **ملحوظة هامة:الامتحان فى ورقتين**

I- Mark the folowing statmnts with False (X) or correct (√) and correct the fase statements: **(18 marks)**

1) ( ) The centrifugal acceleration has a maximum value at the equator.
2) ( ) Paramagnetic materials have positive magnetic susceptibility.
3) ( ) Seismic reflection occurs whenever there is a contrast in acoustic impedance (ρv)between
   a. rock layers ($\rho_1 v_1 \neq \rho_2 v_2$).
4) ( ) Electrical methods are frequently used in searching for metals, minerals and hydrogeology.
5) ( ) Bouguer correction reduces the effect of the attraction of the material between a reference
   a. elevation and that of the given station.
6) ( ) Magnetic declination is the angle between the magnetic north and geographic north of the
   a. earth.
7) ( ) The time-distance curve for the reflected waves is a hyperbola whose axis of symmetry is
   a. the time axis
8) ( ) Self-potential method mainly measure the natural fields within the Earth.
9) ( ) Gravity prospecting method depends mainly up on the variation of the sbsurface rock denesities.
10) ( ) Secular variation is due to the rotation of the earth with respect to the moon
11) ( ) Head waves can be generated and detected near the shot point.
12) ( ) Resistivity method is used in the study of horizontal and vertical discontinuities in the electrical properties of the ground.

II-Complete ONLY SIX from the following: **(12 marks, ٢ marks each)**

1) magnetic susceptibility is: .....
2) The centrifugal acceleration is due to : ..... and equals to .....
3) Velocity of the P-wave can be expressed by the formula: .....
4) Electrical resistivity of any material is defined as: .....
5) Depositional Remanent Magnetization (DRM) is .....
6) The Geoid is defined as: .....
7) For a conducting cylinder of resistance δR, length δL and cross-sectional area δA the resistivity r is given by: .....
8) Normal moveout (NMO) at an offset distance x is : .....

باقى الامتحان فى الورقة التالية

(2)

Answer ONLY NOE of the following: **(20 marks, 5 marks each)**

I. Write in details on the following

a. The drive of the formula of the depth to the burred spherical body from gravity data.

b. Origin and elements of the Earth's magnetic field.

c. Types of the secondary waves which generated at the interface between layers in different cases.

d. The Wenner array in resistivity survey.

II. Answer the following questions

a. Explane Griffin's method for direct computation of residual gravity anomaly.

b. Wirte about qualitative interpretation of the magnetic anomly data.

c. Drive the equation of the travel time curve for the reflected wave from single horizontal interface.

d. Discuss the Schlumberger Array in electrical resistivity prospection.

Examiner: **Prof. Dr. Assem El- Haddad** **Good luck**

---

(1)

Assiut University
Faculty of Science
Geology Department

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

Final Exam

Basics of Petroleum Geology, 2nd Level (Petroleum Geology)

June 13, 2015	GP 264	Total marks 50	Time: 2 hours

Note: support your answer by drawings. ملحوظة: الإمتحان في ثلاث صفحات

1. Complete the following sentences: (6 marks)

1. Capillary contrasts are differences in the capillary properties of the pore-throat apertures of ---------- and ----------
2. API gravity and oil viscosity are generally ---------- to one another.
3. Main groups of organic matter are ---------- , ---------- , ---------- and ----------
4. Petroleum system is ----------
5. Organic richness is affected by ----------, ---------- and ----------.
6. The pore filling kaolinite reduces the ----------, but has little effect on ---------- of a sandstone.

2. Choose the correct answer of the following: (10 marks)

1. **The reservoir must be sealed by a ---------- rock.**

A. Permeable B. Porous C. Very high capillary pressure D. Low porous

2. **API = ----------/ specific gravity 60/60f -131.5.**

A. 114.5 B. 411.5 C. 141.5 D. 114

3. **During the Catagenesis stage, petroleum is released ----------.**

A. First oil and later gas
B. First gas and later oil
C. First oil and later water
D. First gas and later water

4. **Vitrinite reflectivity R_o increases from ----------.**

A. Catagenesis stage to diagenesis stage
B. Catagenesis stage to Metagenesis stage
C. Diagenesis stage to Catagenesis stage

(2)

5. ---------- = basin area * average total area of source rock * transformation ratio.

A. Amount of petroleum generated
B. Volume of kerogen generated
C. Amount of oil potential

6. Secondary migration occurs by ----------

A. Buoyancy
B. Differential pressure
C. Different densities of the respective fluids
D. B and C

7. Natural gas is mainly composed of ---------- compounds.

A. Organic
B. Organic and inorganic
C. Inorganic
D. Inorganic, mixed and organic

8. Type III of kerogen is composed of ----------

A. Phyto- and zooplankton
B. Land plants
C. Algal

9. ---------- forms during the overmature stage of kerogen.

A. Oil only
B. Oil then gas
C. Methane then Graphite
D. Gas only

10. The depositional environments of the pre-rift stage are common characterized by ---------- sediments.

A. Marine
B. Clastic
C. transition
D. Marine and clastic

3. Define all the following: **(4 marks)**

1. Buoyancy
2. Trap closure
3. Oil & gas window
4. Clay dehydration
5. Crude oil
6. Preservation time
7. Net pay
8. Trap fluids

4. Describe briefly the structural, sedimentation characteristics and possible oil traps during different stages of Extensional basins. **(10 marks)**

5. Write a brief on the following: **(15 marks)**

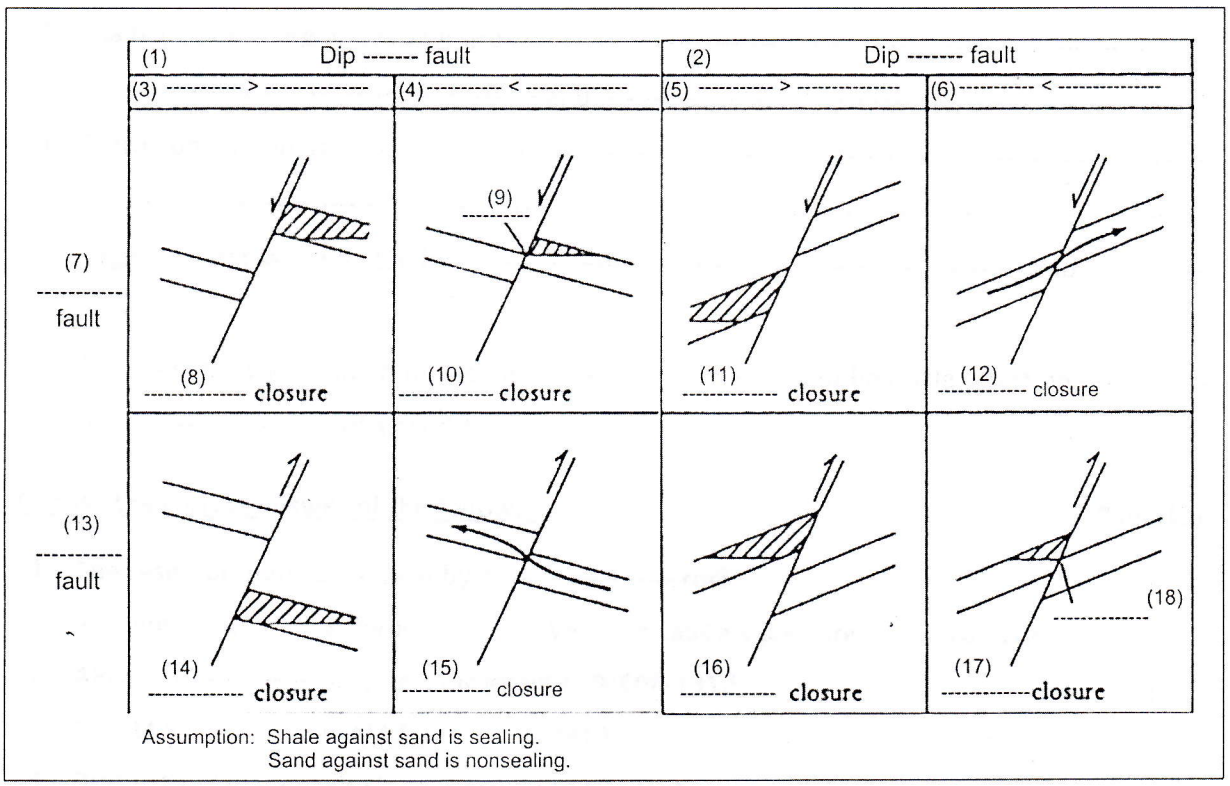
1. Classification of natural gases.
2. Reservoir quality controls.
3. Diapiric and hydrodynamic traps.
4. The positive effect of diagenesis on sandstone reservoirs.
5. Organic carbon cycle.

6. Formation and maturation of kerogen.
7. Types and proves of hydrocarbons migration.

6. Given that the drawn bed in the following figures is composed of permeable sand and the rest is shale, it is required to: **(5 marks)**

Complete the spaces in the descriptions of these configurations of petroleum traps associated with faulting, assuming that oil can move across and not up the fault plane when permeable sands are juxtaposed.

ملاحظة: اكتب الارقام التي تشير إلي الفراغات مرتبة (مسلسلة) في كراسة الاجابة.



Best wishes

Dr. Mohamed ELHossainy

Geology Department Faculty of Sciences Assiut University Second level		Second Term Examination Rock forming minerals (230 G) June, 2015 Two Hours

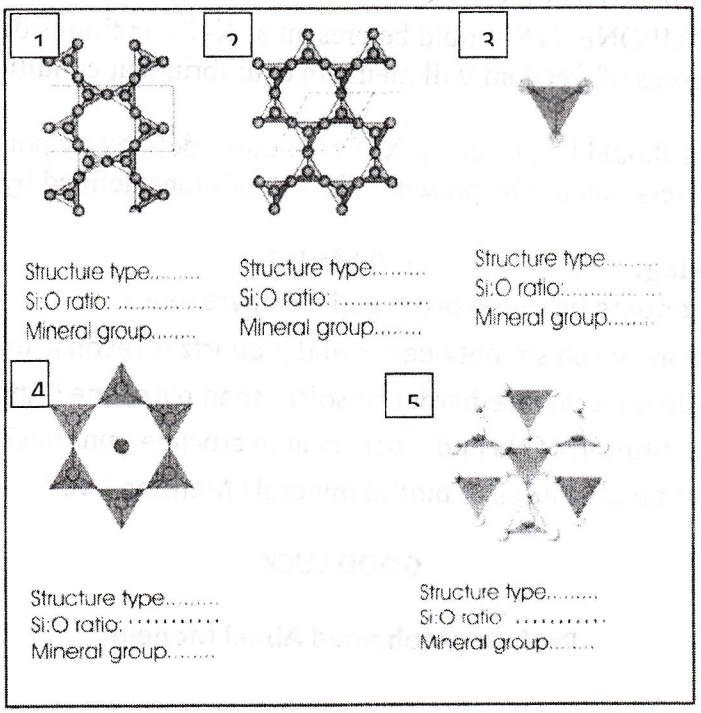
Rock forming minerals (230G)

Answer the following questions:

I) Circle the true statements by (√) and the wrong one by (X) (10 Marks)

A. The coordination number is dependent on the cation:anion radius ratio
B. A radius ratio of 1 favors 12-fold or close packed coordination
C. Variables such as temperature, pressure, and compositional proportions are dependent on the amount of material present
D. In a two-component phase diagram for igneous systems, compositions is typically plotted against pressure-temperature
E. Subsolidus exsolution is cause by unmixing of components in a solid solution mineral as it cools down and the atomic structure becomes more ordered

II) Complete the followings: (10 Marks)



III) Given the formula $En_{70}Fs_{30}$ for an Orthopyroxene, En = Enstatite = $Mg_2Si_2O_6$, Fs = Ferrosilite = $Fe_2Si_2O_6$, Formula is $(Mg_{0.7}Fe_{0.3})_2Si_2O_6$ = $(Mg_{1.4}Fe_{0.6})Si_2O_6$ (10 Marks)

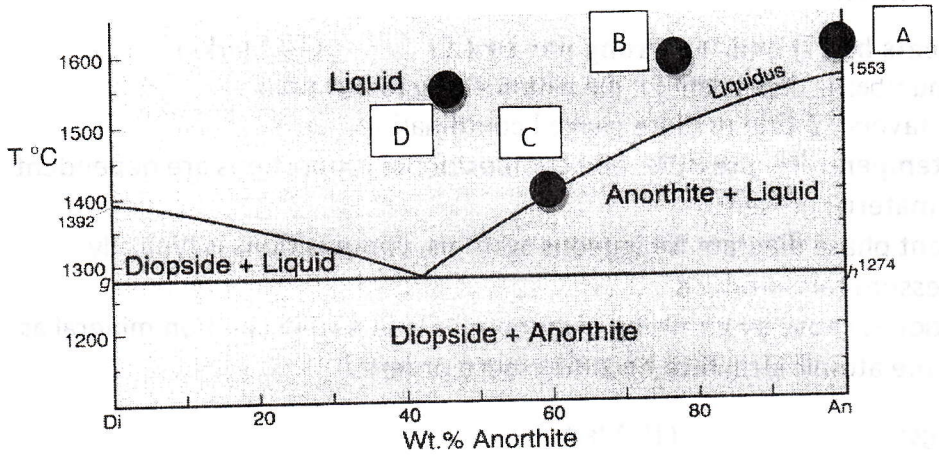
A. What is the type of solid solution?
B. What are the factors controlling the substitution process between Mg and Fe?

انظر خلفه

C. Which mineral is higher in temperature of formation Enstatite $Mg_2Si_2O_6$ *or Ferrosilite* = $Fe_2Si_2O_6$?

D. *calculate the weight percent of oxides (SiO2,MgO,FeO.*

IV) This is an example of phase diagram of Diposide – Anorthite systems, answer the followings: This is an example of phase diagram of Al_2SiO_5, answer the following (10 Marks)



1) How many components of the system?
2) How many COMPONENTS should be present at X-T conditions defined by point A?
3) How many degrees of freedom will maintain equilibrium at conditions represented by point B?
4) Which phase(s) should be present at X-T conditions defined by point D?
5) How many phase(s) should be present at X-T conditions defined by point C?

V) Answer the following: (10 Marks)

1. How can differentiate between ortho and clinopyroxene?
2. Is the type of polymorphism between ∝ and β quartz is reconstructive or displacive?
3. Is the amphibole minerals are harder or softer than pyroxene? And why?
4. Is the ionic substitution of Na and K occurs in microcline minerals? and why?
5. What are the main attributes of biotite mineral? Mention two?

GOOD LUCK

Prof. Dr./Mohamed Abdel Moneim

"بسـم اللـــه الرحمن الرحيـم"

Credit hour system - Second semester - Final Examination (9/6/2015)

Principals of igneous and metamorphic rocks (232PG)

Second Level (Petroleum geology)

===

Answer Four only of the following questions: (12.5 M for each question)

1- a- What is the difference between:

i- Juvenile fragments and Cognate fragments

ii- Diagenesis andMetamorphism

iii- Aphanitic texture phaneritic texture

iv- Composite volcano and Shield volcano

b- What is the meaning of viscosity of magma/ lava. Discuss the factors affecting this Viscosity?

2- a- Explain the mechanism of formation of porphyritic textured rocks?

b- Write on the metamorphic agents and changes?

3- a- What are the characteristics of the glassy extrusive rocks?

b- Discuss the equilibration in metamorphic rocks?

4- a- Mention the factors that affecting melting of minerals and rocks?

b- Explain the various types of pyroclastic fragments?

5- a- What is the meaning of the following terms: Epitaxial growth, Staurolite zone, Magma Differentiation?

b- What is the relation between crystal size and cooling rates of magma?

أ.د. جلال حامد الحباك

أنتهت الاسئلة

Faculty of Science
Geology Department

Final Exam
Optics of Minerals (G 235), May 2015
Time Allowed: 2 Hours, 50 degrees

Answer all the following questions:

Mark Yes (✓) or No (X):

1- All rock forming minerals are isotropic.
2- Biotite is darkest in plane polarized light when the cleavage set is parallel to the polarization direction of the polarizer.
3- Anisotropic minerals are subdivided into Uniaxial and Biaxial optical groups.
4- Centered uniaxial interference figure with two crossed isogyres does not separate by stage rotation.
5- Light travels with a single velocity along the optic axis.
6- Interference figures are optical patterns formed for the anisotropic minerals.
7- The stage of the polarizing microscope is a rotatory one.
8- Two rays polarized at right angles do not interfere.
9- The relief is a rough measure of the difference between the index of the mineral and the index of the surrounding medium.
10- Isotropic mineral fragment with (n) greater than the mount should be illuminated on the side toward the darken half of the field of view.
11- Birefringence of a uniaxial crystal is zero for light rays propagated along the optic axis direction.

Complete:

12- Biotite with cleavage is used to determine the .....direction of the .....
13- Interference colours is an optical phenomenon seen between .....
14- The light waves of the isogyres consist of .....component parallel to the .....
15- A uniaxial mineral with positive elongation should have .....optic sign.
16- The breaking up of the white light into the colours of the spectrum is called.....
17- Light is .....when it passes through anisotropic minerals.
18- All thin sections of the mineral give oblique extinction, therefore the crystal system is .....
19- V_E is equal to V_0 along the .....in uniaxial crystal.
20- The white band in the interference colour chart is the result of .....of.....

Select from the lettered choices that choice or choices which complete the statement or answer the question:

21- In calcite rhomb O- ray
- a- Vibrates parallel to the short diagonal.
- b- Vibrates parallel to the long diagonal.
- c- Vibrates parallal to the optic axis.

22- The ray surface of cubic crystal
- a- Is a sphere.
- b- Is a simple surface.
- c- Is one spherical surface.

23- Isotropic minerals crystallize
- a- In cubic system.
- b- In isometric system.
- c- In Tetragonal system.

24- Extraordinary rays in anisotropic minerals.
- a- E -ray in uniaxial minerals.
- b- Z, Y and X rays in biaxial minerals.
- c- O-ray in uniaxial minerals.

25- Pick out the faster method of determining the relative refractive index.
- a- Oblique illumination method.
- b- Central illumination method.
- c- Becke line method.

26- Interference colours chart
- a- Displays successive orders.
- b- Interference colours bands show gradation.
- c- Displays one order only.

27- Calcite grains in plane polarized light, during stage rotation
- a- Show marked change in relief.
- b- Show twinkling.
- c- Show low relief when the rhomb short diagonal is parallel to the polarizer.

28- Section perpendicular to the optic axis in uniaxial mineral
- a- Is dark between crossed polaroids.
- b- Gives centered uniaxial interference figure with two crossed isogyres which does not separate.
- c- With zero birefringence.

29- Extinction
- a- Is parallel position.
- b- The mineral vibration directions superpose the polarization planes in the two crossed polaroids.
- c- Is isotropic position.

30- Pleochroism
- a- Is different colours in different directions.
- b- Is seen under plane polarized light.
- c- In coloured uniaxial minerals it is dichroic, while in coloured biaxial minerals it is trichroic.

Assiut university Faculty of Science Geology Department Spring 2015	جامعة أسيوط كلية العلوم-قسمالجيولوجيا الفص الدراسى الثانى ٢٠١٤/٢٠١٥م

Final Examination on GIS course for
Petrolleum Geology Student (GP 208)

Answer all of the following questions أجب عن كل الاسئلة ولاحظ ان درجات كل سؤال مختلفة عن الآخر

QI. Write a short Essay on GIS. Make sure that your essay is short but precise and informative and provides a detailed explanation for each of the following (a: h); use specific examples, sketches, drawings whenever is applicable. (24 Marks; 3 Marks for each item from a :h)

a)-What are the various definitions of a GIS discussed in the lecture?. What elements do each have in common?

b)-What is the difference between automated cartography, CAD, and GIS?

c) What is the difference between GIS and LIS?

d) What is the difference between spatial "interpolation" and spatial "extrapolation"?

e)List four of the advantages of GIS?

f)List and discuss briefly the main components of GIS?

g)List five areas of GIS Application?

h) list and Discuss briefly the GIS functions?

Q2) Compare between Raster and Vector Model for representing geographic features; illustrate by figures(6 Marks)

QIII.I Fill in the Blank (15 Marks; one mark each)

1._____ "Pixel" is an abbreviation of what two words?

2. _____ The part of an ArcView GIS that shows small icons that initiate tasks is called what?

3. _____ Ability of a DBMS or GIS to get back from computer memory records previously stored?

4. _____ A 2000-foot road is represented on a map with a 1-inch line. What is the map scale?

5. _____ Type of scaling used on a temperature thermometer.

6._____ the shape of the earth and definition of earth datums

7._____ the transformation of a curved earth to a flat map

8. in _____Model Geographic coordinates and attributes are stored in separate but linked files.

9-Spatial data output include ----------,----------,----------,----------

---

10 What is the length of a 1º increment along on a meridian and on a parallel at 35N, 75W?

Radius of the earth = 6370 km

III.II True or False Place a "T" or "F" in the space provided.

11. _____ The map overlay concept adopted in GIS was popularized by the book "Design With Nature" by Ian McHarg.

12. _____ User interface developments led to GIS's vastly improved ease of use during the

1990s.

13. _____ The flat file model consists of tables of attributes for values (columns) and records (rows).

14. _____ No map projection can be both equivalent and conformal.

15. _____ An advantage of raster data storage is the smaller amount of data to be stored.

Assiut University
Faculty of Science
Geology Department

جامعة أسـيوط
كلية العلـوم
قسم الجيولوجيا

Final Examination
2nd Level - Geology

Jun. 2015	GIS (240G)	50 Points	Time: 2 Hours

Give your answers on the given papers and back of it
Support your answers with drawings when applicable
Answer the required questions only to save your time

A- Answer only two of the following questions..... (12 points)

1) Give detailed description with drawings on UTM coordinate system
2) Discuss in details the Map Projection and projection classification
3) Describe the GIS and GPS and their components

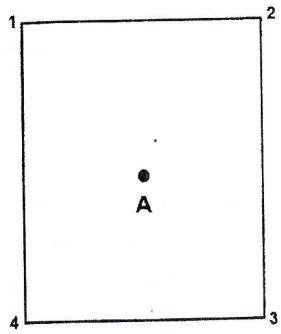
B- Define only five of the following (use drawings when possible): ..... (5 points)

1- Topology
2- The control Segment
3- Geodesy
4- Drainage basin
5- DEM
6- Layer Type

C- Answer the following question ..... (6 points)

The graphic below represents a map for an area. Point 'A' is located at 25° N latitude and 28° E longitude. The Coordinates of the corners of the map in UTM are given in the following Table (R = 6370 km). Answer the following questions using information provided by Point 'A' and the four coordinate pairs

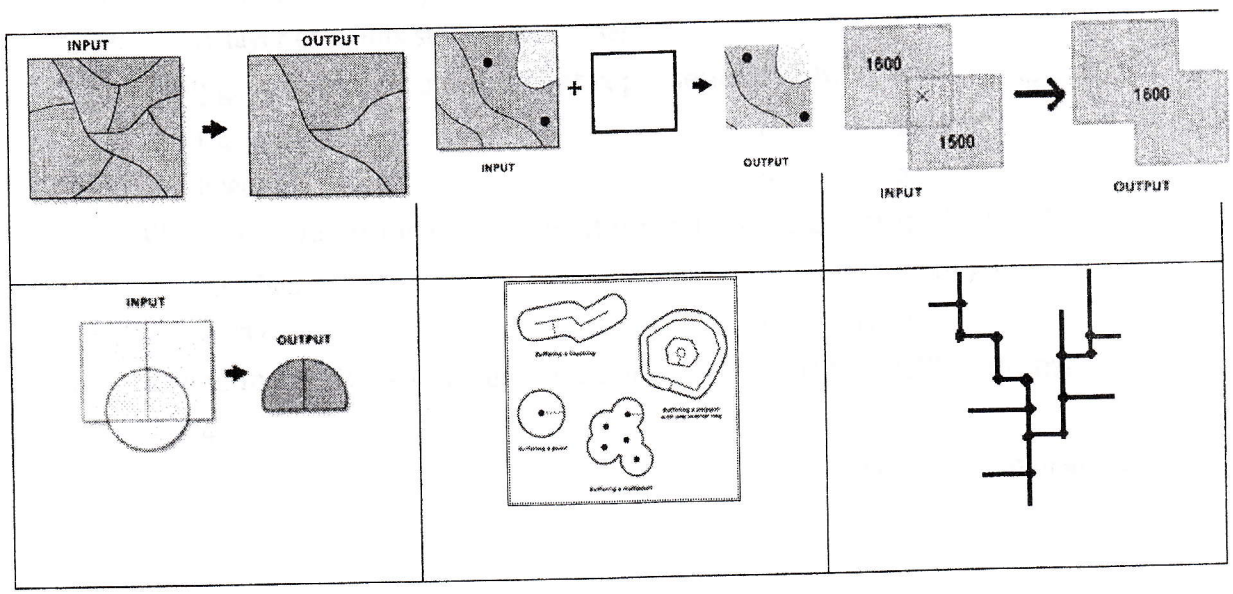
Point #	UTM-Easting	UTM-Northing
1	601,000	2,777,000
2	.....	.....
3	604,000	.....
4	.....	2,773,000



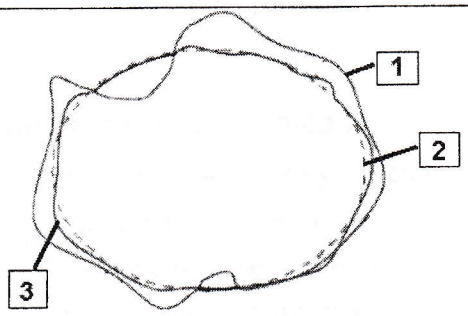
1) Complete the missing coordinates within the table
2) The UTM zone of the map is .....
3) The central meridian is.....
4) The area of the map is .....km^2
5) If the distance between point 1 and 4 is 4 centimeters, what is the scale of this map:.....

D- Answer the following: ..... (6 points)

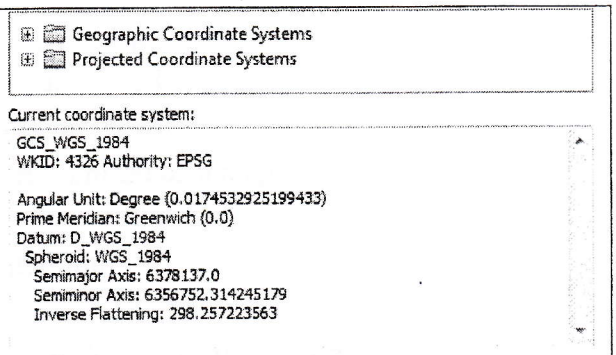
Indicate the GIS functions that give the following processes



E- Fill in the gabs ..... (6 points)



What are the given numbers refer to:
1: .....
2: .....
3: .....



From this Figure:
The Coordinate System is:.....
Datum is: .....
Radius of Earth (long) is: .....Km

F- Choose the correct answer of the following: ..... (15 points)

1. A feature (Shape file) has a geometry, a location, a symbol, and one more component. What is the other component?
   a. Attributes
   b. Scale
   c. Cells
   d. Layer
2. Which one of the following would not be a vector layer?
   a. A layer showing the Ground elevation
   b. A layer of houses represented by polygons
   c. A layer of lines representing rivers
   d. A layer of points such as addresses
3. A polygon, a line, or a point that represents an object is a .....
   a. Raster
   b. Feature
   c. Surface
   d. Map
4. Which ArcGIS application is used for managing geographic data?
   a. ArcCatalog
   b. ArcObject
   c. ArcToolbox
   d. Editor
5. How many active satellites are in orbit and used by a GPS systems?
   a. 4
   b. 6
   c. 24
   d. There are too many satellites

6. What is the minimum number of satellites the GPS can communicate with to gain a 3-D position?

a. 3
b. 4
c. 6
d. 24

7. Symbolizing features means.....

a. Assigning properties by which they can be recognized on a map
b. Adding labels to your map
c. Drawing circles on a map to show where cities are
d. Adding sound to your map

8. Attributes that are measurements or counts of features are called.....

a. Qualitative attributes
b. Categorical attributes
c. Quantitative attributes
d. Descriptive attributes

9. Cylindrical, Conic and Azimuthal are types of.....

a. Metadata
b. Map Projections
c. Queries
d. Spatial Data

10. What is the basic component of a Raster?

a. A Point
b. A Shape
c. A Feature
d. A Cell

11. Polygons that can be drawn at a constant distance around every feature in a layer, or at a distance that varies according to attribute values are called.....

a. Overlays
b. Queries
c. Buffers
d. Boundaries

12. What does the acronym SQL stand for?

a. Structured Query Language
b. System Query Language
c. Supporting Query Language
d. Selecting Query Language

13. A summary document providing content, size, quality, type, creation and spatial information about a data set is called.....

a. Metadata
b. A world file
c. A query
d. Spatial Data

14. An attribute query is made up of an attribute field, an attribute value, and one more component. What is the other component?

a. A location relationship
b. A number value
c. A text value
d. An operator

15. The resolution of a raster is measured by number of cells, and in a vector by number of.....

a. points
b. lines
c. nodes
d. vertices

End of Questions
Best wishes

Assiut University
Faculty of Science
Geology Department

جامعـــــة أسيـــــوط
كلية العلوم - قسم الجيولوجيا

2nd Semester Final Written Exam, 2015
for Geology, Geochemistry, Geophysics Students

Course: **Principals of Stratigraphy, G210** Time Allowed: **2 Hrs**

Part I (25 degrees)

1- Affirm if the following statements are correct or wrong, and correct the wrong one: (5 marks; 1 mark each)

A- Stratotypes in well sections are designated by well depths and on well logs and in cores, if available.

B- Geologic periods marks major cycles of marine transgression and regression with pronounced unconformities separating the systems.

C- A lithostratigraphic unit is a body of rocks that includes all rocks formed during a specific interval of geologic time.

D- Biostratigraphic correlation is based on composition of rock units, position of similar rick units a sequence, and presence of key beds.

E- In magnetostratigraphy, direction of magnetization of a rock is defined by its north-seeking magnetization.

2- Define FIVE only of the following: (5 marks; 1 mark each)

a- Geologic rock unit, b- Pedostratigraphic unit, c- Geologic time scale, d- Type locality, e- Geochronometry, f- Curie point, g- Formation.

3- Choose the correct answer: (5 marks; 1 mark each)

A- Position within a chronostratigraphic unit is expressed by adjectives such as:
1- lower 2- uppermost 3- middle 4- lowermost 5- upper 6- All of them

B- Stratigraphic units bounded by unconformities are termed:
1- lithodemic 2- allostratigraphic 3- pedopstratigraphic 4- diachronic

C- Formal naming of a magnetostratigraphic polarity unit is formed from:
1- name of a geographic feature 2- term indicating direction of polarity
3- term indicating its rank 4- All of them 5- None of them

D- In chronostratigraphic classification, names of currently recognized systems indicate:
1- tribal 2- chronologic 3- lithologic 4- geographic 5- All of them

E- Ways to illustrate stratigraphy are:
1- Stratigraphic columns 2- Geologic maps 3- Cross sections 4- All of them

4- Write briefly on TWO only of the following: (10 marks; 5 marks each)

A- Remanent magnetism.

B- Laws and principles of stratigraphy.

C- Nature of contacts between lithostratigraphic units.

---------- *End of part I* ---------- *Good luck, Dr. Amr S. Deaf* ----------

Part II (25 karks)

5- Mark with (√) or (X): **(11 marks; 1 mark each)**

1- Sea-floor spreading can cause rising sea level only.

2- Bracketing relationships is used to estimate absolute rock ages.

3- Occurrence of inclusions of older age inside younger rocks is called law of lateral continuity.

4- Cross-bedding is considered evidence for superposition.

5- Coarser sediments are deposited in the deeper parts of the shelf environment.

6- Unconformity surface is irregular and basal conglomerates occur at the base of the younger section.

7- Law of superposition necessitates the foundation of index fossils that have wide geographic extension within short time periods.

8- Occurrence of thousands of parts per million (ppm) from Iridium element proves its terrestrial derivation.

9- Short ranging fossils are the only used fossils in biostratigraphic analysis.

10- Sequence stratigraphic units are called "Allostratigraphic Units".

11- Original continuity of rocks cannot be seen across valley sides.

6- Choose the correct answer: **(4 degree; 2 mark each)**

A- Species overlap through space and time depends on:

1- Time 2- Geographic position 3- Paleoecology 4- All of these

B- Biostratigraphic units can be expressed in terms of:

1- Plant fossils 2- Vertebrate fossils 3- Invertebrate fossils 4- All of them

7- Write briefly on <u>five only</u> from the following: **(10 marks; 2 marks each)**

A- Sequence boundaries.

B- Extraterrestrial impacts.

C- Global Boundary Stratotype Section and Point (GSSP).

D- Basic idea on which concurrent range zones can be established.

E- Range biozones.

F- Sample preparation for stable carbon isotope measurements.

G- Systems tracts in sequence stratigraphic work.

أنتهت الأسئلة

End part II, Examiner: Prof. Dr. Magdy S. Mahmoud (Geology Department)

(أ)

Geology Department Faculty of Sciences Assiut University Second level		Second Term Examination Rock forming minerals (234 G) June, 2015 Two Hours

Crystallography and Optical mineralogy

Part One: Crystallography

Answer the following:

I) Circle all the statements that are true by (√) and the false one by(X)of the following: (5marks)

1. Prism is an open form that parallel to b-axis
2. Tetragonal bipyramid is an open form that form from 8-faces
3. In triclinic system the crystal axes are not perpendicular but equal
4. Combination between the rotation axes (4 fold and 2 fold)are occur in tetragonal system only
5. Cube is The planar surfaces bounding the crystal called crystal faces

II) Match each of the holo-symmetry law (A)with its suitable crystal system(B) (5 marks)

(A)	(B)
$3^{-}m$	isometric
2/m	orthrombic
m3m	trigonal
1^{-}	monoclinic
mmm	triclinic

III) Draw the sterographic projection of the following crystal forms (10 marks)

Ditetragonal bipramid - hexaoctahedron

IV) How can you prove that the rotoinversion axis (6) is equivalent to 3/m? (5 marks)

Part Two: Optical mineralogy

I) Choose the correct answer of the following: (10 marks)

1. (relief-cleavage-pleochroism) is a measure of the relative index of refraction
2. Mineral grains go extinct 4 times in 360° are (isotropic – anisotropic-isometric)
3. Angle between analyser and polaraizer fixed at (90°-180°- 360°).
4. Changes in absorption color in PPL as rotate stage is called (relief – pleochrism-color).
5. Monoclinic and triclinic minerals have (inclined- symmetrical – parallel) extinction
6. The reflectivity index (R) IS (>1, <1, =1).
7. All uniaxial minerals show (parallel-oblique-symmetrical) extinction.

انظر خلفه

8. A 3-d map of how the IR of light varies with vibration direction in a mineral is (aisotropic-isotropic-indicatrix).
9. Trimetric minerals are (uniaxial-biaxial-triaxial).
10. Twinning is usually obvious in (normal light-plane polarized PPL-crossed Nicolas C.N)

II) Mention three way used for polarizing light. (5 marks)

III) If you have two unknown minerals, one is isotropic (A) and the other is anisotropic (B).How can you identify them by using polarized microscope? (5marks)

IV) What are the factor controlling the interference color orders? (5 marks)

GOOD LUCK

Mohamed Abdel-Moneim

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

Final Exam. In Petrophysics Course (GB 226)

For Second Level (Petroleum Group)

May, 2015 **(50 marks)** **Time: 2hours**

I. Define the following: **(10 Marks)**

Radiation - Thermal conductivity - Half life - Gamma Rays –

Hardness - CEC.

II. Explaine <u>FOUR ONLY</u> of the following: **(20 Marks)**

1. Factors affecting on the magnitude of Permeability.
2. Relationship between resistivity & salinity.
3. The resistivity of clay.
4. Types of Conductivity and Oil -water system.
5. Geologic Events dated by Radiometric method.

III. Write on <u>FOUR ONLY</u> of the following: **(20 Marks)**

1. The resistivity of shale.
2. Factors affected on oil – water inter-facial tension.
3. Contact phenomena between water and rock capillarity.
4. TAGI formation.
5. Parameters affected on the formation resistivity factor.

==========Good Luck ==========

Dr. Mohamed Fekry Khalil

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

Second Semester Examination
Geology Students, 2nd Level
(Invertebrate Paleontology)

June 2015	G 215	50 Marks	Time: 2 hours

Answer Four Questions Only:

The First question (12.5 Marks).

1. What are the different modes of Fossilization.
2. Write on the type of coiling and wall structure in Foraminiferal shells.

The Second question (12.5 Marks).

What do you know about?

1. Skeleton of Archaeocytha and their geological importance.
2. Paleozoic index fossils (give some examples).
3. Classification of Brachiopoda.

The Third question (12.5 Marks).

Write on:

1. The relation between Tetracorella and Hexacorella and their ages.
2. The development of suture line in Ammonoidea and their relation to geologic time.

The Fourth question (12.5 Marks).

Describe in details:

1. Shell parts in Gastropoda.
2. Skeleton in Crinoida.
3. Shell of Nautiloida.

The Fifth question (12.5 Marks).

What is the difference between:

1. Regular and Irregular Echinoidea.
2. Crinoida and Echinoida.
3. Articulata and Inarticulata in Brachiopoda.

Good luck,

Prof. Dr. Hassan A. Soliman *Prof. Dr. Adel A. Hegab*

Assiut University
Faculty of Science
Geology Department

جامعـــــة أسيـــــوط
كلية العلوم - قسم الجيولوجيا

2nd Semester Final Written Exam, 2015

Course: **Vertebrate Paleontology & Origin of Species, G216** Time Allowed: **2 Hrs**

Part I: Origin of Species (25 marks)

Answer the following questions

1- State whether the following statements are correct or wrong and correct the wrong one: (5 marks; 1 mark each)

A- Biological species concept defines a species as a set of organisms with a unique genetic history.

B- Dominance indices pay more attention to the rare species.

C- Ecological isolation means that two species live in different habitats have a good chance of interaction.

D- The theory of inheritance of acquired characteristics is a proof of evolution of organisms.

E- Species richness (***S***) is very sensitive to sample size.

2- Define Four Only of the following: (8 marks; 2 marks each)

A- Population, B- Behavioral isolation, C- Anagenesis speciation, D- Simpson index , E- Species.

3- Write briefly on Three Only of the following: (12 marks; 4 marks each)

A- Mechanisms of species evolution.
B- Differentiate between the Shannon-Wiener index and Brillouin index.
C- Causes of species extinction.
D- Postzygotic reproductive isolation.

End of Part One

Examiner: Dr. Amr S. Deaf ***Good Luck***

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

Second Semester Final Examination
Geology Students, 2nd Level
(Vertebrate Paleontology and Origin of species)

June 2015	G 216	50 Marks	Time: 2 hours

(Part II)

The Frist Question: (10 Marks)
Choose the correct answer:

1. What was the 1st group of fish to evolve?

A. Bony fish B. Jawless fish C. Cartilage fish D. Goldfish

2. What is the scientifically accepted ancestor of the amphibians?

A. Lobe fishes B. Ray-finned fishes C. Lampreys D. Mammals

3. Primitive jawless fishes that are the earliest vertebrates in the fossil record are called.....

A. Cephalaspidomorph B. Placoderms C. Ostracoderms D. Chondrichthyes

4. Amphibians are firstly evolved in.....

A. Eocene B. Devonian C. Carboniferous D. Neogene

5. *Tiktaalik* is an important fossil link in the origin of.....

A. Fishes B. Reptelis C. Tetrapods D. Chondrichthyes

6. The oldest Reptiles were known from ..... age

A. Late Ordovician B. Late Triassic C. Early Cretaceous D. Late Carboniferous

7. Galeaspids among the fishs which have the largest number of.....

A. Fins B. Gills C. Scales D. Bony plates

8. Labyrinthodonts were abundant during the Carboniferous and start to decline in.....

A. Cambrian B. Eocene C. Permian D. Silurian

9. Labyrinthodonts were abundant during the Carboniferous and start to decline in.....

A. Cambrian B. Eocene C. Permian D. Silurian

10. The intermediate group between the bacteria and eukaryotes known as.....

A. Cyanobacteria B. Archaebacteria C. Blue green-algae D. Haptophytes

The Scond Question: (10 Marks)
Which of the following is true and which is false, correct the false ones:

1. **Synapsids, consider the Reptilian lineage that led to mammals ( )**
2. **The Devonian is often called the "Age of fishes" ( )**
3. **The Placodermi lived from the late Silurian to the end of the Devonian Period. ( )**
4. **Labyrinthodont amphibian *Eryops* lived from the Carboniferous to Triassic. ( )**
5. **Cartilaginous fish characterized by hard bone skeleton. ( )**
6. **Acanthostega and Icthyostega are considered the earliest tetrapods. ( )**
7. ***Spinosaurus aegyptiacus* is one of the most famous Egyptian dinasours which belong to Maastrichtian in age. ( )**
8. **The limbs of the earliest tetrapods were first evolved not for walking on land, but for walking under water. ( )**
9. **The jawless Acanthodians have fins supported by erectable spines. ( )**
10. **Therapsids constitute the majority of the known reptile genera. ( )**

The Third Question: (5 Marks)

Write on two only of the following:

1. **The differences between Amphibian and Reptile.**
2. **Conodonts.**
3. **History of Amphibian.**
4. **Plesiosaur.**

With my best wishes

DR. Amr Abdel Sabour