Third Level: Geophysics Program Second Semester (Final Exam) Applied Statistics math 302 Time allowed (Two hours)	Mansoura University Faculty of Science Mathematics Department Date :11-6-2-12

Answer the following questions

(Total Degree 80 and every part 10 degrees)

1-a) The probability that a student selected at random from a college, passes in math. Is 0.8 and he passes in statistic is 0.7 and passes in both is 0.5. What is the probability that he will pass in at least one of them if it is known that passing in one does not depend on passing the other?

b) A sample of size 9 has mean 0.3 and standard deviation 0.024 is drown from a normal population with mean μ. Find 95% confidence interval for the mean of the population.

2-a) A group of 5 men and 3 women, a committee of size 3 is selected at random. If X represents the number of women on the committee, find the probability distribution of X.

b) The probability that a team will win a match is 0.8. If it played 10 matches what is the probability that it will win between 5 and 8 matches.

c) A sample of size 64 is taken from a population with mean 900 and standard deviation 50. Find the probability that the mean of the sample takes values between 895 and 910.

3-a)Find the median and the variance of 14, 10, 8, 12, 6.

b) Calculate the mode for the data:

set	10-	20-	30-	40-	50-	60-	70-
Freq.	5	19	10	13	4	4	2

c)Find 95% confidence interval for the mean of a population if it is drown from it a sample of size 36 with mean 2.6 and standard deviation 0.3.

($z_{0.025}=1.96$, $z_{0.005}=2.58$, $p(0<z<1.6)=0.445$, $p(z<0.8)=0.788$, $p(z<2.67)=0.9962$, $t_{8,0.025}=2.306$, $T_{9,0.025}=2.262$, $t_{8,0.05}=1.86$.

With best wishes of success (Dr. Adela Osman)

Mansoura University
Faculty of Science
Physics Department

2nd Term Examination
May 2012
Time allowed: 2 hrs

Atomic Physics and Spectra 333 ف

Answer the following questions

1-a) For a monovalent element, deduce the possible j values for $\ell = 0,1,2,3$ and the type of each state. Explain the spectral series of Na atom. To which series the two D lines (D_1& D_2) belong? Comment. [10 marks]

b) Deduce the wavelength in A^o and the energy in eV of the spectral line of the minimum wavelength of the Paschen series. [10 marks]

2-a) The application of elliptical orbits to one electron model leads to degenerate orbits. Study in detail. [10 marks]

b) Discuss briefly the two main concepts of the vector atom model.
The orbital angular momentum vector of an atom **L=2** and the spin angular momentum vector **S=3/2.** Estimate the total angular momentum vector of the atom **J**. [10marks]

3-a) The orbital motion and the spinning motion of an electron lead to orbital magnetic dipole moment μ_ℓ, spin magnetic dipole moment μ_s and total magnetic dipole moment μ_j. Explain in detail. [10 marks]

b) Using apparatus of high resolving power, the first spectral line of minimum energy of the Balmer series consists of 3 thin spectral lines packed together "Fine Structure". Draw these spectral lines. Comment. [5 marks]

c) Explain only the function of " the two parallel plates and the velocity selector" in mass spectrograph. [5 marks]

($c=3\times10^{10}$ cm/s $h=6.625\times10^{-34}$ J.s $R=1.097\times10^{7}$ m^{-1} $1eV=1.6\times10^{-19}$ J)
($e=1.6\times10^{-19}$ C $m_e=9.11\times10^{-28}$ g)

Best Wishes

Prof. A. El-Khodary

جيوفيزياء - فيزياء الحالة الصلبة (ف ٢٤٢)

Mansoura University Faculty of Science Physics Department	Geophysics, 3rd Level	2nd Semester, 2011-2012 June, 2012 Time: 2 Hours

Solid State Physics (Ph.334)

Final Examination **(Full mark: 80 degrees)**

	Answer the following Questions:	Mark
1.a)	A crystalline solid is one in which the molecules or atoms are arranged in highly ordered repeating patterns. Compare between different bonds lead to this.	6
b)	Study in details the different types of point defect in crystal structure.	7.5
c)	Find the density of packing for B.C.C, F.C.C and S.C.	7.5
d)	Sketch the plans have Miller'indices:(101),(122),($11\bar{1}$) and($11\bar{2}$) inS.C.	6
2.a)	If iron has B.C.C lattice structure, it's atomic weight is 55.85 and density 7.86 gm/cm^3, calculate the lattice constant of a unit cell knowing Avogadro's number N_A= 6.02x10^{26} atom/k mole.	7.5
b)	Find the zone axes direction [uvw] if the two planes have Miller indices (154) and (22$\bar{0}$) are in the zone.	7.5
c)	The radiation from an x-ray tube operated at 50 KV are diffracted by a KCl crystal which has FCC structure, its molecular mass 74.6 and density 1.99 × 10^{3}Kg/m^3. Calculate: i) The short wavelength limit of the spectrum from the tube. ii) The angle for the first order reflection from the principal planes of the crystal for the wavelength.	6
d)	Verify second Fick's law.	6
3.a)	Prove that each vector of the reciprocal lattice is normal to a set of lattice planes of the direct lattice.	8
b)	Explain how one determines the activation energy for vacancy formation E_V.	6
c)	Study in details diffraction condition.	6
d)	Lead is a FCC with an atomic radius of r= 1.746 A. Find the spacing of: i) (220) planes ii) (111) planes.	6

With our Best wishes

Examiners:	*Prof. Dr. A.-R. Degheidy*	*Dr. Safaa Abdel-Maksoud*

Mansoura University
Faculty of Science
Geology Department

جامعة المنصوره
كلية العلوم
قسم الجيولوجيا

٣ جيوفيزياء - مغناطيسة قديمة
جف ٥٠٢

Paleomagnetic Final Exam (Third level Geophysics)

المغناطيسيه القديمه جف 305 (المستوى الثالث برنامج الجيوفيزياء) 2012/6/11 صباحاً

Answer the Following Questions (Total mark 60)

1- Complete the following: (20 mark)

a) The inclination varies systematically with ----------, it equals ---------- at the north magnetic pole, and equals ---------- at the equator,

b) Zijderveld diagram shows ---------- and ---------- changes of demagnetization data including ---------- and ----------

c) Secular variation of the magnetic field can provide ---------- about succession of magnetic events ---------- of time that may be ---------- in correlation, particularly in archaeological research.

d) The stability test of the NRM can be carried out by ----------, ---------- and ---------- demagnetization.

e) The four fundamental stability field tests are: **1-** ----------; **2** ----------; **3** ---------- and 4- ---------- the contact test.

f) APW paths represent the ---------- the rotation axis relative to the continent, depending on whether one plots the movement of---------- **or** ----------.

2- Choose YES (✓) or NO (X) and correct the wrong: (20 mark)

a) Based on APW paths, we can calculate palaeolatitudes and plate velocities for a specific geographical location

b) The global pattern of magnetic reversals is regular and periodic.

c) Magentostratigraphic correlation of rock sections based on their magnetic polarity zonation.

d) Sedimentary rocks are weakly magnetized, and proton magnetometers, are required to measure and their magnetization history.

e) Most magnetic minerals lose their magnetization at a certain temperature, called the demagnetization point.

f) The DRM occurs when igneous rock solidifies and cools below the TC.

g) Koenigsberger Ratio Q is measure of ratio of intensity of induced to remanent magnetization.

h) In paleomagnetic it is important to sample rocks at widely separated localities (perhaps separated by as much as several hundred km).

i) Demagnetization destroys the stronger (primary NRM) while the weaker (secondary NRM) remains.

باقى الأسئله فى خلف الورقه

j) In paleomagnetic It is important to sample rocks at widely separated localities (perhaps separated by as much as several hundred km).

3- Define the following: **(20 mark)**

a) Bedding-tilt correction

b) NRM stability test

Secular geomagnetic v In paleomagnetic It is important to sample rocks at widely separated localities (perhaps separated by as much as several hundred km).

c) ariations

d) Geomagnetic time scale

Best Wishes

*Prof. Dr. Hosni Ghazala**

المستوى الثالث - جيوفيزياء - فيزياء ٢٠٤ - طرق التقييم الزلزالية

Mansoura University
Faulty of Science
Department of Geology

June, 2012
Date: 7th June 2011
Time: 2 hours
Full Marks: 60 marks

2nd term Exam in Seismic Exploration (فيزياء ٢٠٤)

Answer the Following *THREE* Questions

First Question **(20 marks)**

Compare between each of the following

a) Normal move out (NMO) & Dip move out (DMO) (10 marks)
b) Root Mean Square & Interval velocities (10 marks)

Second Question **(15 marks)**

Choose YES or NO and correct the wrong

1) In the case of migrated time sections:
a) The true depths are shallow than the unmigrated depths.
b) The fault plan has a greater dip than unmigrated fault plan
c) The concave surface of the anticline is more flattened , and
d) The syncline surface is more wider than unmigrated time section

2) Zero offset two way time value is usually higher than the intercept time

3) Uphole survey means that the seismic source is moving upward and the receiver is on the earth's surface

4) The NMO correction is directly proportional to:
a) The geophone spreading
b) Seismic velocity and
c) The depth of the reflecting interfaces

5) A band pass filter allows seismic signals with high amplitude to pass from it

6) A reflection coefficient of, for example, 0.3 implies that 30% of the energy reaching a reflecting interface is passed through the interface The remaining 70% of the energy is returned towards the surface.

7) DMO is considered as a partial migration because the reflected rays are collected at the same point in upward directions.

8) A wavelet is a wave-like oscillation with a frequency that starts out at zero, increases, and then decreases back to zero

المصححون:
أ.د./ حمدى صيصه * – أ.د/ محمد رفعت– د. وليد شكرى – د. فريد مكروم

Third Question (15 marks)

Write short notes on each of the following

a) Types of migration (5 marks)
b) Gather types (5 marks)
c) CMP stacking (5 marks)
d) Aliasing (5 marks)
e) Kirchof migration (5 marks)

With my best wishes
Prof. Dr. Hamdy Seisa

المصححون:
أ.د./ حمدى صيصه * – أ.د/ محمد رفعت– د. وليد شكرى – د. فريد مكروم

المستوى الثالث - جيوفيزياء - صخور وتكوينات (٣٠٧ ج)

Mansoura University		Second Term Exam	(May 2012)
Faculty of Science		Program Geophysics	Third level
Geology Department		Subject: G 307	Tectonics
Date: 21 /06/2012		Time: 2 hours	Full Mark: 60

كلية العلوم
جامعة المنصورة

Answer the following questions **20 Marks for each**

Question 1

a. Write on the assembly of Pangaea super continents. *(7 Marks)*

b. Write on the ophiolite sequence. *(6 Marks)*

c. Write on oceanic - oceanic convergence, continental - continental divergence and transform plate boundaries. Give example of each type *(7 Marks)*

Question 2

a. Write on the Wilson tectonic cycle and give example for each event. *(7 Marks)*

b. Write short notes on the hot spots and its tectonic significance. *(6 Marks)*

c. Write on the different sedimentary basins and its tectonics. *(7 Marks)*

Question 3

a. Write on the types accommodation zones in rift tectonic model *(7 Marks)*

b. Compare between Caledonian and Hercynian Orogenies. *(6 Marks)*

c. Mesozoic Tethys tectonics. *(7 Marks)*

لجنة الممتحنين:

أ.د/ عادل عيسى أ.د/ أحمد [illegible] أ.د/ محمد [illegible]

٣ جيوفيزياء - علم الطبقات متقدم ج ٢٠١٢

Mansoura University
Faculty of Science
Dept. of Geology
Course Title & Code: Advanced Stratigraphy (G 303)
Full marks: 60

Second Semester (May 2012)
3rd level, Geophysics
Time: 2 hours
Date:14/6/2012

Answer all the following questions?

Question 1:

Multiple choices from 1 to 10 [(All letters equally weighted), 24 marks]

1- The roots of sequence stratigraphy can be traced far back in

a- The classic principles of sedimentary.
b- The classic principles of stratigraphy.
c- The classic principles of ichnlogy.
d- The classic principles of basin analysis.

2-The 2nd revolution in sedimentary geology is

a- The Plate tectonics and the geodynamic concepts.
b- The flow regime concept.
c- Sequence stratigraphy.

3- In fact, a key aspect of the sequence stratigraphic approach is to encourage

a- The integration of data sets and research methods.
b- Pure paleontological analysis
c- Study only the facies analysis
d- The mapping of the conformable beds unbounded by unconformities.

4- The academic applications of sequence stratigraphy include

a- Genesis and internal architecture of sedimentary basin fills.
b- Exploration for hydrocarbons, coal, and mineral resources.

5- Integrated data of sequence stratigraphy are

a- Outcrops, modern analogues, core and well logs
b- Seismic data, sea level change، subsidence, uplift, climate, sediment supply, basin physiography and environmental energy.

6- **The main controls of Sediment logy, stratigraphy, geophysics, geomorphology, isotopes and basin analysis sequence stratigraphy are**

a- Sea level, subsidence, uplift and energy.
b- Outcrops, modern analogues, core and well logs.

7-Complete the following sentences to give a correct knowledge?

a- Pedology means.....

b- Lawrence Sloss recognized .....major sequences in North America controlled by eustatic sea level changes.

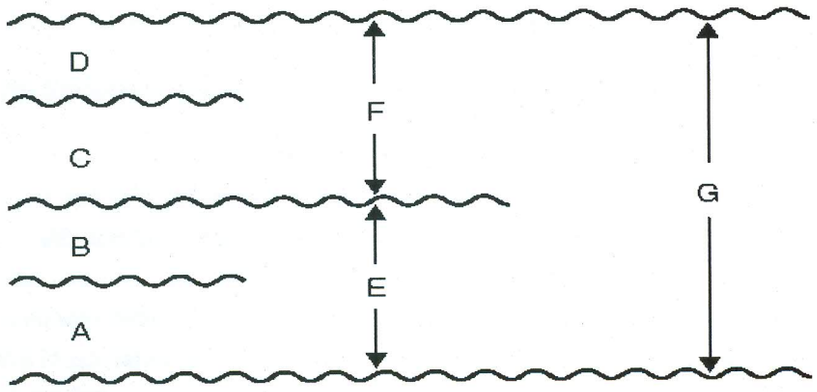
c- Sequence stratigraphy is generally regarded as stemming from.....

d- The term "sequence" was introduced by Sloss *et al.* (1949) to designate.....

e- Mitchum (1977) expanded the term "sequence" to include.....

f- The main drivers of stratigraphic cyclicity are ..... and.....

g- The figure given below shows .....



h- In the previous figure the center of the basin of deposition lies to the.....

i- The lines we draw on the two-dimensional stratigraphic cross section are of two main types: (1).....and (2).....

8- Define the following:

a- The main building blocks of sequence stratigraphy.

b- Stratigraphic contacts.

c- Depositional system.

d- System tract.

e- Property of 8 types of stratigraphy.

9- Choose the correct

a – Sequence stratigraphy has not yet been formally incorporated into The Code, nor into Guide.

b- Sequence stratigraphy has been formally incorporated into Code, nor into Guide.

c- The application of sequence stratigraphic is dependent of scale.

d- The definition of sequence stratigraphic is independent of scale.

10- Put in a frame:

a- Sequence stratigraphy in the context of interdisciplinary research-main controls, integrated data sets and subject areas, and applications.

b- Sequence stratigraphy and its overlap with the conventional disciplines of sediment -logy and stratigraphy.