Mansoura University Faculty of Science Physics Department		Final examination, 2013-2014 Second semester May, 2014 Time: 2 hrs
	Geophysics, 3rd Level	

Solid State Physics (Ph.334)

Answer the following Questions:		Marks
1.a)	A beam of X-ray of $\lambda=0.86A$ is incident on NaCl crystal. Calculate the angle of the second-order Bragg's reflection from the plans (121) and (100) if d (100) =2.86A.	5
b)	Study the rotating X-ray diffraction method.	5
c)	Write a short note on the line defects.	5
d)	Discuss the different types of atomic bonds in solid; give an example for each type.	5
2.a)	A certain orthorhombic crystal has axial units a, b, c of 0.424 , 1, 0.367. Find the Miller indices of crystal faces whose intercepts are 0.212,1, 0.183.	5

b)	Define: i-packing ratio and find this ratio for Body Center Cubic structure.
	      ii-Axis of symmetry for crystalline solid.
	      iii-center of symmetry
		5

c)	The atomic weight of iron is 55.85& its density is 7.86 gm/cm^3. Calculate the lattice constant of a unit cell, if iron has a body center cubic structure; Avogadro's number is 6.02×10^{26} atoms/K mole.	5
d)	Verify first Fick's law.	5
3.a)	Find the Miller indices of a plane which pass through the two zone axes [134,100], [010, 323].	5
b)	Silver has FCC structure and its atomic radius is 1.441 A. Find the spacing of {213} plans.	5
c)	In a unit cell of SC structure, find the angle between the normal to pair of plans whose Miller indices are (101) and (011).	5
d)	Prove that the perpendicular distance between adjacent members of the same family {hkl} in S.C = $a/\sqrt{h^2+k^2+l^2}$, where a - is the length of the cube edge.	5

With our Best wishes,

Examiners:	*Prof. Dr H .Doweidar*	*Dr. Safaa Abdel-Maksoud*

Mansoura University
Faculty of Science
Physics Department.
Subject: Physics(3)
Title: Atomic physics &Spectra
Code : 333

Final term exam – 2nd term
Third Year/GeoPhys.
Date: may. 2014
Allowed Time: 2 hours.
Full Mark: 60

Answer the following questions

[1] a-According to Bohr model, obtain a formula for the energy levels of a hydrogenic atom which contains a single electron and whose nuclear charge is +Ze? [15] Mark

b- A photon is emitted as a hydrogen atom undergoes a transition from the state n = 6 to the n = 2 state. Calculate the wavelength and the energy of this photon ? [5] Mark

[2] a- Explain in full details the normal Zeeman effect phenomenon? [15] Mark

b- Determine the normal Zeeman splitting of the cadmium red line of 6438 Å when the atoms are placed in a magnetic field of 0.009 T. [5] Mark

[3] a- Find the possible values of the total angular momentum quantum number j under the LS coupling of two atomic electrons whose orbital quantum numbers $\ell_1 =1$ and $\ell_2 =2$? [8] Mark

b- Determine the shortest and longest wavelengths in Balmer series of hydrogen? [6] Mark

c- Write briefly about the sodium doublet? [6] Mark

Const.: C =3x10^8 m/s, h = 6.283 x10^{-34} J.s, ε_0 = 8.85x 10^{-12} F/m, R= 1.097 x10^7 m^{-1}

Best wishes, : *Prof.Dr. Kermal El-farahaty*

Mansoura University
Faculty of Science
Geology Department
Course: Advanced   Stratigraphy
 (G 303)
Marks: 60 marks

Second Semester (May 2014)
3rd level: Geophysics& geology
Time: Two hours
Date: 4/6/2014

Answer only three questions of the following questions

Question One: Answer both A &B)

A- Do the requirements for points from No1 to No12 (12 marks)

1-The integrated data of sequence stratigraphy are: 1-........ 2-..... 3- ...... 4-..........

2-The main controls of sequence stratigraphy are: 1......... 2-......... 3- ..... 4-...... 5....... 6.....7....

3- The importance of process Sedimentology in sequence stratigraphic: 1-........... 2...............

4-The importance of the stratigraphic component in sequence stratigraphy is 1- .... and 2-
....

5- The sequence stratigraphy is a package because...............

6- There are 3 revolutions of sequence stratigraphy: first..............second...............third........

7. The success of sequence stratigraphy appears in 1..................... and 2..............

8- Draw a figure showing that the correlative conformities allow tracing sequences across an entire sedimentary basin.

9- Mitchum(1977) defined the sequence stratigraphic as ....

10- What means by the statement: "the application and definition of sequence stratigraphic concepts is independent of scale"?

11-Are sequence stratigraphic surfaces commonly true time lines?

12- What is the term expressing that "The substantial break or gap in the geological record characterized by a lack of continuity in deposition"?

B- Write short notes on two only of the followings. (8 marks)

1- Concepts of Depositional System, Facies, facies association and Facies Models? (4 marks)

2- Significance of Sedimentary Petrography and Pedology for sequence stratigraphy. (marks).

3- Noah flood as a probable event of sequence stratigraphy. (4 marks)

Question Two: Answer two only of the followings:

A- **Discuss such statement**: The sea-level changes and sedimentation is affected by changes to shoreline, sedimentation, transgression and regression, concept of accommodation, rate of sediment supply and cycle of sea-level change. (10 marks)

B- **Write short notes** on the causes of sea-level fluctuations? (10 marks)

C- **Mention and discuss** the common branches of the applied Stratigraphy? (10 marks)

Question Three:

A- Define the following basins using drawings: Shelf-break margins, Ramp margins, Rift margins, Foreland basin margins, and Growth fault margins. (10marks)

B- **Write short notes on only two of the followings**: (10 marks)

1- Relative sea level, tectonics and eustasy.   2- Sediment supply.

3- Historical review of sequence stratigraphy.

Question Four:

Write short notes on only two of the followings:

A- Sequences and system tracts.   (10 marks)

B- Basin margin concept. (10 marks)

C- Basic principles of Ichnology dealing with classification and soft ground related ichnofacies. (10 marks)

D- Classification of environments. (10 marks).

المصححون: أ. د. حسنى حمدان*   أ.د. عبد الله شاهين

Mansoura University
Faulty of Science
Department of Geology

May, 2014
Date: 31th May 2014
Time: 2 hours
Full Marks: 60 marks

2nd **term Exam in Seismic Exploration (304 جف)**

Answer the Following Questions

<u>First Question</u>   (12 Marks)

What does the term migration mean? What is the purpose of migration?
Explain the effect of migration on :

a) A dipping interface,   *b) An anticline,*   *c) A syncline*   *d) A fault*

<u>Second Question</u>   (14 Marks)

Write short notes on each of the following
   a) Gather types
   b) Average and RMS velocities

<u>Third Question</u>   (14 Marks)

Write in details on static correction of reflection seismic data

<u>Fourth Question</u>   (20 Marks)

4- Choose YES or NO and correct the wrong

a) In case of a dipping reflector, the reflected rays are collected at the same

   point in downward directions

b) Down-hole survey means that the seismic source is moving upward and
the receiver is on the earth's surface

c) The T-ΔT relation is directly proportional to:
         1- The geophone spreading
         2- Seismic velocity and
         3- The depth of the reflecting interfaces

d) The average seismic velocity is the distance traveled by a seismic wave from
   source to some points the earth divided by the half of the recoded time

e) Dix's equation is used to convert interval velocity to RMS velocity

f) Muting means the improve of selected seismic traces in a stack to

   maximize early arriving noises