



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR UNDERGRADUATE STUDENTS, GEOPHYSICS, LEVEL TWO

1969

COURSE TITLE:

Radioactive and Geothermal Methods

COURSE CODE:GP2109

DATE:

JAN, 2021

SEMESTER: FIRST

TOTAL ASSESSMENT MARKS:100

TIME ALLOWED: 2 HOURS

(I) Radioactive Methods

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible).

- 1) What are the radioactive minerals? (10marks)
- 2) Illustrate the airborne gamma-ray spectrometric survey. (10marks)
- 3) Describe the following: (20marks)
 - a) Two types of Spectrometers.
 - b) Types of radiation.
- 4- Identify the followings: - (10 marks)
 - a) Total count.
 - b) Specific activity.
 - c) The decay constant.
 - d) The half life time.

(II) Geothermal Methods

1-Wite on the followings:-

- a) Geothermal systems of continental craton, subduction zone and mid-oceanic ridge. (10 marks)
- b) Sources of geothermal heat energy. (10 marks)
- c) The vertical thermal system across the earth interior. (10 marks)

2- What is geothermal energy and how it can be used. (10 marks)

3- Define the followings: - (10 marks)

- a) Partial melting.
- b) Heat flow equation.
- c) Thermal stratification in water bodies.

EXAMINERS	DR SHADIA TAHA ELKHODARY	DR ZENHOM EL-SAID SALEM



EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF GEOPHYSICS

COURSE TITLE:	SEISMIC WAVES AND VELOCITIES		COURSE CODE: GP 2101
DATE:	10 MARCH, 2021	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100
			TIME ALLOWED: 2 HOURS

Answer the following questions


- 1- **Define the following:** Seismic wave amplitude, Seismic wave frequency, Not visible seismically zone, and Fresnel zone. (20 Marks)
- 2- **Discuss in detail, the difference between seismic P waves and S waves.** (26 Marks)
- 3- **What do control the velocity of seismic waves travelling?** (26 Marks)
- 4- **Choose the Best Answer** (28 Marks)
 - 1- If there is no contrast in acoustic impedance across the interface
 - a. all the incident energy is reflected
 - b. all of the incident energy is refracted
 - c. all the incident energy is transmitted
 - 2- Nearly all hydrophones and geophones are currently used for seismic detection in marine (offshore) and on land (onshore).
 - a. True
 - b. False
 - 3- Seismic waves propagate through
 - a. The vacuum
 - b. The fluid material
 - c. The solid material
 - 4- What is wrong in the following?
 - a. The propagation velocity of the seismic waves depends on elasticity of the medium
 - b. The propagation velocity of the seismic waves depends on plasticity of the medium.
 - c. The propagation velocity of the seismic waves depends on density of the medium.
 - 5- When the wave is reflected, the reflected wave propagated with the speed of the
 - a. Differs from the velocities of upper and lower layers
 - a. Upper layer
 - b. Lower layer
 - 6- If P-wave and S-wave were to go from a solid to a liquid - what would happen to their velocity?
 - a. P-wave and S-wave increase
 - b. P-wave and S-wave decrease
 - c. P-wave decrease and S-wave decrease to zero
 - 7- When the wave is critically refracted, it travels parallel to the interface at a speed of the
 - a. Differs from the velocities of upper and lower layers
 - b. Upper layer
 - c. Lower layer

EXAMINERS

Prof. Mohamed A. Salem

☺ Good Luck ☺

Page 1 of 1

 1959	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	<u>THEORETICAL EXAMINATION IN GEOPHYSICS FOR 2- LEVEL STUDENTS SPECIAL GEOPHYSICS</u>			
COURSE TITLE:	<u>GRAVITY METHOD-1".</u>		COURSE CODE: GP 2103	
DATE:	/1 / 2021	TERM : FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2H .

1 - Answer The Following Questions :

Marks:60

- 1-Write about the Griffin's and second vertical derivative methods used in Gravity Anomaly Separation . 20
- 2- Write about LAND OR MARINE gravity field survey. 20
- 3- Write in detail about the elevation and latitude corrections. 20

11- MCQ EXAMINE : CHOOSE THE CORRECT ANSWER : (20 Marks).


- A)-Gravity method measures (a natural , artificial or induced) potential field.
- B)- Elevation correction deals with the error in field data caused by the (height & density, variation in magnetic data or changing in resistivity) .
- C)- The gravimeter measures (magnetic susceptibility ; density of rock or conductivity) of rocks .
- D) Grid- spacing design for potential survey depends on (type of measuring instrument ; the topography of the area; or the separated measuring distance.
- E)- The maximum gravity intensity of the Earth presents at (the Equator; the pole or the mid area.)

11- TRUE AND FALSE EXAMINE: 20 Marks).

Put sin (√) for correct answer an put sin (X) for false answer:

- A- For oil exploration ,the separated distance between measuring points is the largest one ; while in archaeology this distance is the minimum. ().
- B- The gravity force at the center of the Earth is the greatest value . ().
affected by the centrifugal force . ().
- C- The marine gravity survey is always conducted with another geophysical method. ().
- D- Residual gravity map always refers to huge and regional subsurface masses.()
- E) The types of gravimeters are vertical and horizontal instruments . ().

EXAMINER: PROF. DR. MOHAMED REFAAT H. SOLIMAN

 1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	FINAL EXAMINATION FOR LEVEL TWO OF GEOPHYSICS STUDENTS			
COURSE TITLE:	Electrical Methods(1)		COURSE CODE:GP2105	
DATE:	JANUARY 2021	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible).

Question 1: Describe the following:

- a) Factors which control the resistivity of earth material. (15 marks)
- b) Types of Electrode Arrangements for resistivity survey method.(15 marks)
- c) Limitations and Advantages of Induced Polarization method. (10 marks)

Question 2: Explain the following:

- a) Sources and application of induced polarization method. (15marks)
- b) Electrical flow in rocks. (15 marks)
- c) Use of electrical prospecting for oil exploration. (10 marks)

Question 3: Discuss Applications of the electrical resistivity method. (10marks)

Question 4: Complete the followings: (10marks)

- a) Resistance depends on theand.....
- b) Dielectric constant is.....
- c) Displacement current is.....
- d) Resistance is defined as.....while resistivity is
- e) The necessary components for making resistivity measurements includeand.....

Good Luck

EXAMINER	PROF.SHADIA TAHA ELKHODARY
----------	----------------------------



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

FINAL EXAMINATION FOR SECOND LEVEL STUDENTS OF GEOPHYSICS

1969	COURSE TITLE:	Magnetic Methods(1)		COURSE CODE:GP2107
DATE:	,JANUARY,2021	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible).

- 1: Discuss each of the following: (40 degree)
- a- Types of Magnetization.
 - b- Main features of the geomagnetic field.
 - c- Fluxgate magnetometer.
 - d- Magnetic minerals.
- 2: Write notes about: (20degree)
- a- The Ground magnetic surveys.
 - b- Temporal Variations of the Earth's Magnetic Field.
- 3: Illustrate the shape of the magnetized sphere at the Northern hemisphere and equator and how could we calculate its depth. (20degree)
- 4: Put (✓) in front of the write sentence and (X) in front of the wrong sentence. (20 degree)
- a- Induced magnetization sometimes called polarization. ()
 - b- Magnetic susceptibility for a vacuum and nonmagnetic substances equals zero. ()
 - c- Magnetic susceptibility for antiferromagnetic minerals is negative. ()
 - d- Main Field is believed to be caused by electrical currents in the Earth's fluid outer core. ()
 - e- No mantle field because the mantle consists mainly of carbonates and its conductivity is very low ()
 - f- The effective base of local magnetic sources is the Curie isotherm beneath continents. ()
 - g- The earth's geomagnetic elements are those actually observed at each point. ()
 - h- The dip needle is used to measure the amplitude (strength) of the magnetic field. ()
 - i- Oersted= 10^{-4} Tesla. ()
 - j- Magnetic gradiometers are employed in surveys of shallow magnetic features. ()

Good Luck

EXAMINERS | PROF. SHADIA TAHA ELKHODARY