

Cairo University

Faculty of Science

Subject Code: PTU 102

Total marks: 80

### Final Exam

#### I. Reading<sup>1</sup>

20 marks

The Niger Delta makes up more than 7 percent of Nigeria's total land mass, covering an area of 20,000 square kilometers (12,000 square miles). It is one of the most **biodiverse places** on the planet, comprising four ecological zones: coastal barrier islands, mangrove swamps, freshwater swamps and lowland rainforests.

Drilling here began in the 1950s. By now, 2.5 million barrels of oils are produced every day. The delta makes Nigeria the most oil-rich country in Africa. But corruption and weak governance translate into little environmental oversight or regulation. The impacts of oil spills on the Niger Delta are devastating: Mangrove forests are being obliterated, fish and shellfish are dying off, and whole **ecosystems** are collapsing.

**Environmental** groups are calling for the companies to properly clean up these spills when they occur. But activists say that time and time again, this isn't happening. And the effects of oil spills - especially since they are not remediated - last for a very long time.

Besides demanding that companies clean up, communities are also seeking compensation. And one recent case has a documented legacy: After major spills in 2008 and 2009, Shell agreed in early 2015 to pay the residents of the town of Bodo in the Niger Delta 76 million euros (\$81 million) as compensation for environmental pollution.

1. What is this passage about?
  - a. The huge oil reserves in Nigeria
  - b. oil spills in Niger Delta
  - c. Shell
2. As used in the passage, "**biodiverse places**" means.....
  - a. places that support various creatures
  - b. distinctive places
  - c. lifeless places
3. How did Shell compensate the residents of Bodo in early 2015?
  - a. Through financial pay for the people
  - b. Through financial pay for the government
  - c. Speaking to environmental groups.

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<sup>1</sup> Excerpted from <http://www.dw.com/en/oil-spills-keep-devastating-niger-delta/a-18327732>



10. As a geophysicist, she is mainly.....in studying the internal structure and evolution of the earth<sup>5</sup>.

11. ....is a sensitive device for measuring variations in the Earth's gravitational field. It is used in the search for oil and minerals<sup>6</sup>.

12. Few managers who.....for Royal Dutch Shell are protesting their low wages. They are even ready to launch a legal battle against their rich employer.

### III. Grammar and Structure

26 marks

#### A. Change each sentence fragment into a complete sentence **14 marks**

1. Hussein, a leading expert in petroleum engineering.
2. Oil prices; boosted Middle East stock markets on Thursday.
3. with much activity focusing on exploring gas in Lebanon.
4. While the economy was strengthened by the great news.
5. Industrializing the country.
6. Because they will support our family.
7. Ended a research project with her Moroccan colleagues.

#### B. Choose the most suitable answer from between the brackets. **12 marks**

1. Our company ended the project suddenly because efficient engineers are leaving our town. *The main verb in this sentence is* (suddenly—are leaving—ended).
2. Your analysis (support—supports—supported) your claim that prices are never going down.
3. If these projects are likely to be shut down, investors will not work in our region again. *This sentence is* (simple—compound—complex).
4. The *outside* of the house needs some cleanup. “*Outside*” is a/an (adjective—noun—preposition).

<sup>5</sup> <http://earthquake.usgs.gov/learn/kids/become.php>

<sup>6</sup> Adapted from Encyclopaedia Britannica

5. Officials also should deal with the increasing costs of building cities in the desert. *This sentence is* (simple—compound—complex).

6. How many specialists are there in the room? *This sentence is* (simple—compound—complex).

IV. Writing

10 marks

Write at least 10 lines on **ONLY** one of the following topics.

1. The ecological impact of using deep-water petroleum.
2. Petroleum in Egypt.
3. Importance of studying geology in the field of petroleum.

Good luck!



Faculty of Science

**Total marks: 80****Final Exam****I. Reading****25 marks**

Read the following passage then answer the following questions:

With an approximate length of 6,800 km, the Nile is the longest river in the world. The nineteenth century quest for the source(s) of the Nile is *a heroic chapter in the history of the exploration of the African continent*, and it was long thought that Lake Victoria was its ultimate source. Until recently, it was believed that its true tributary, the Luvironza River, that springs in Tanzania at 4° S, was the Nile's ultimate "source". However, a revised length estimate of 6,718 km was established in 2006, when a British–New Zealand **expedition** found that the tributary of the Kagera River arising furthest to the south is the Rukarara River. It springs in the Nyungwe forest, Rwanda.

The Nile basin covers the whole of Egypt and the Sudan. For both countries, the Nile is a vital economic resource. The basin also covers about one third of Ethiopia, the whole of Uganda, and part of Kenya, Tanzania, Congo, Rwanda and Burundi.

In recent decades, fossil fuel deposits have been discovered in at least three zones of the basin. The Nile delta (both onshore and offshore) is currently Egypt's main source of hydrocarbons and natural gas. Egypt's oil production peaked in 1996 at  $1 \times 10^6$  barrels per day, and has since fallen back to about 600,000 barrels per day. Although minor new discoveries are announced from time to time, it is unlikely that the delta area will ever become a major international oil supplier.

(By Henri Dumot in his book: *The Nile*, 2009.)

- Tributary (n): a stream or **river** that flows into and joins a main river.<sup>1</sup>)

1. The Nile's headwater in the south is the..... . **(Choose/ 3 marks)**

- a. Kagera River      b. Rukarara River      c. Luvironza River      d. Lake Victoria

2. This passage focuses on..... . **(Choose/ 4 marks)**

- a. the Nile delta      b. the Nile basin      c. Egypt's fossil fuel in the Nile delta      d. all of the above

3. Which of the following statements is false: **(Choose/ 2.5 marks)**

- a. the Nile basin covers almost one third of Ethiopia,  
b. the Nile River covers the whole of Egypt, the Sudan and Uganda,

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<sup>1</sup> From <http://kids.britannica.com/elementary/article-476329/tributary> accessed on December the 23<sup>rd</sup> 2016.

- c. the Rukarara River springs in Tanzania,  
d. the Nile is the longest river in the world?

4. In paragraph I, what is being described as “a heroic chapter in the history of the exploration of the African Continent”? (3 marks)

5. As used in paragraph I, line 6, “expedition” means..... (Choose/ 3 marks)

- a. people involved in a research journey of exploration  
b. a journey undertaken for exploration  
c. short trip for no purpose  
d. speed on doing something

6. Find a word used in the passage, which has the opposite meaning to “hit bottom”. (2.5 marks).

7. Egypt’s highest point of oil production was in..... (Complete from the passage/ 2.5 marks)

8. In the light of Eni’s discovery of the Zohr gas field in 2015<sup>2</sup> and its gross production of 700mn ft<sup>3</sup>/d from Nooros gas field<sup>3</sup>, which are both located offshore Nile delta, do you agree with Henri Dumot’s conclusion that the delta area would never become a major international oil supplier? Elaborate on your answer. (4 marks)

## II. Vocabulary

24 marks

A. Fill in the gaps using each of the following words only ONCE: 18 marks

offshore platforms— onshore drilling rig— latitude—helipad— seismic— GPS— coordinates— geophones— water-resistant— waypoint— petrochemical— human resources— processing plant— shifts— pipelines— maintenance— escape course

1. The American global navigation satellite system, known as....., is heavily used by our Egyptian subsidiary to track the movements of our fleet of oil tank trucks in Egypt.
2. This area, on the roof of our headquarters, is used by the company’s air ambulance. It is called a .....
3. ....are huge steel or concrete structures used for the exploration and extraction of oil and gas from the Earth’s crust.<sup>4</sup>
4. Using the recently collected.....data by the hydrophones, our geophysicists concluded that the area where the Nile delta basin meets the Levantine basin may hold massive reserves of natural gas.
5. “The instructions provided by our manager are clear. We should not use any other route except for this one. He will be calling us every time we reach a single.....throughout our journey.”

<sup>2</sup> [https://www.eniday.com/en/human\\_en/discovery-development-gas-zohr/](https://www.eniday.com/en/human_en/discovery-development-gas-zohr/)

<sup>3</sup> <http://www.naturalgasworld.com/eni-egypts-greater-nooros-now-3-trillion-ft3-31785>

<sup>4</sup> <http://large.stanford.edu/courses/2014/ph240/liegl2/docs/sadeghi.pdf>

6. Hellenic Petroleum operates many oil refineries in Greece. It is understandable that this company controls the biggest share of the.....industry. They sell gasoline, diesel, heating oil among many other products.
7. The .....department in the national company is looking for professional trainers to provide company personnel with advanced workshops on geodesy.
8. “Your radio has been totally damaged after it fell into the salty water of the ocean. Why haven’t you bought a.....radio as I told you?!”
9. “The longitude coordinates are available in degrees, minutes, seconds’ decimals of the location but the.....precise coordinates are missing!”
10. My friend works twelve hours every day. These eight-hour.....are exhausting. My friend looks always pale!
11. The utilities area needs urgent..... . The crew are suffering are freezing in their beds because of the broken heating system.
12. “You should complete your safety training before joining the drilling crew in the desert. Do your fire-fighting and .....course before the end of the week.

B. Match words from column (A) with their definitions from column (B): **6 marks**

Column (A)	Column (B)
1. 1000 m <sup>3</sup>	a. Three-dimensional
2. kPa	b. Two-dimensional
3. Oil barrel	c. megapascal
4. 3D	d. kilopascal
	e. one hundred cubic metres
	f. a thousand square metres
	g. a thousand cubic metres

III. **Grammar and Structure** **26 marks**

A. Change the following statements into correct sentences. 12 marks

- In the afternoon.
- I have lunch right now.
- What happen to your face?
- I am thinking you should get your hair cut.
- Suzanne is older Layla.
- What have you?
- Found inside the rocks.

8. Ali he always studies after midnight!

B. Choose the most suitable answer from between the brackets. 14 marks

1. Why (do—does—did—done) everyone believe him? He is a liar!
2. “My village’s farmlands are disappearing.” The **subject** in this sentence is (disappearing— my village’s— farmlands— my village’s farmlands).
3. I was not sad but my friends (are—have— were— was).
4. “Did you take your car to the garage?” The sentence order in this sentence is (subject, verb, object— verb, subject, object— helping verb, subject, main verb, object— subject, verb, prepositional object).
5. “Mourad could not understand the data. Things were **confusing**.” “**Confusing**” is a/an (noun— adjective— adverb— verb).
6. My professor published a (piece of paper— paper— sheet— log) in a famous international scientific journal.
7. My sister is a **hard** worker. “**Hard**” is a/an (preposition— adjective— noun— adverb).

#### IV. Writing

5 marks

Write one thesis statement on **only one** of the following topics:

1. Egypt’s estimated gas reserves.
2. Environmental dangers of using hydrocarbons.
3. Importance of geology in the oil and gas industry.

Good luck!



Cairo University

اعتماد كلية العلوم  
2015

Duration: 45 m

## Midterm Exam for University Requirements

Petroleum Geosciences Program

First Term

Total marks: 20



Cairo University

3 Pages

Name:.....

Code:.....

## I. Reading

10 marks

*Read this passage then answer the following questions:*

So, the landscape of undergraduate teaching is changing. How do we recruit more students to take these geoscience courses? First, we need to offer interesting and relevant courses that are taught by our very best professors. Second, we need to take advantage of the prominence of global warming as a public issue but not fall into the trap of assuming that the world sees what geoscience brings to the table. Third, we need to develop curricula that have attractive, interesting, and relevant midlevel course offerings that draw more students to take a second or even a third course in geoscience, as well as entice them to consider a major in geoscience.

We also need to think more broadly about recruiting students to major in geoscience. Humanities departments have done exceptionally well for decades in selling an education rather than training for a career in a discipline. The geosciences have nothing to lose and everything to gain by doing something similar, namely recruiting students to major in geoscience regardless of their career intentions.

A major in geoscience can offer students first-hand experience in evidence-based problem solving, systems thinking, data collection and analysis, quantitative approaches, clear and concise writing, oral presentation, and working in teams to solve problems. These are skills applicable to a wide variety of fields in which a student might pursue graduate training. And, if we can attract more students to major in geoscience, we will increase the number of citizens with significant, rather than minimal, training in geoscience thinking and problem solving, regardless of whether they become professional geoscientists.

(From Barbara Tewksbury's "More than Just a Workforce Issue: Teaching Geoscience for Future")

1. Who are the target audience for this passage? (Short answer is required/3 marks)
2. Who is referred to by the pronoun "we" throughout this passage? (Short answer is required/2 marks)
3. What part of speech is each of the following: (Short answer is required/3 marks)
  - a. entice (line 7)
  - b. major (line 8)
  - c. evidence-based (line 13)
4. In paragraph 2, what is being compared to the Humanities departments? And why? (Long answer is required/3 marks)
5. Mention whether the following sentences are **TRUE**, **FALSE** or **NOT GIVEN**.
  - a. Common people would gain many skills from taking university courses in geoscience.
  - b. Departments of humanities are performing poorly in enlisting undergraduate students this year.

- c. Global warming as a public issue should be used by the geosciences departments to draw new students into their fields of specialization.
- d. All people are aware of the importance of geosciences

(Answer with one word for each of the abovementioned question points/4 marks)

- 6. As used in line 1, “landscape” refers to (picture representing natural scenery—landforms of a region including hills, rivers, buildings and trees—prospect—an area of activity). (Choose/3 marks)
- 7. Suggest a title to the passage. (Write/2 marks)

## II. Vocabulary and Grammar

10 marks

*Choose the most suitable answer from between the brackets:*

1. Northern Africa is endowed with (solar—renewable—hydrocarbon—geothermal) energy resources such as oil and natural gas.
2. Egyptian natural gas (funds—wells—exploration—reserves) increased significantly after the discovery of Zohr gas field. Zohr added 30 trillion cubic feet of gas to Egyptian natural gas resources.
3. The technician who installs and repairs pipes in a petroleum field is called (pipe-fitter—maintenance technician—production operator—driller).
4. The Arab-D (rock—reservoir—stream—lake) in the Ghawar Field of Saudi Arabia is the world’s largest oil field producing 5 million barrels a day. It is one of the biggest subsurface body of rock which stores petroleum in the world.
5. (Liquefaction—Pressurization—Processing—Distillation) happens by heating crude oil to its boiling point at the bottom of a high steel tower to release gases and vapors.
6. Following the (drilling—emergency—scientific—assessment) procedures in any oil field is very important.
7. GPS stands for (global program studies—general practice strategies—global positioning system—ground power supply). It is one important technology for geologists and oil surveyors stranded in the desert.
8. (Geotechnical—Geologic—Physical—Geophysical) data are used by oil exploration and development staff to make predications about the presence, nature and size of subsurface hydrocarbon accumulations.

9. “Hydro-“ in hydrology, hydrologist, and Hydrophysics means (water—earth—space—waves).
10. A rock or soil with pores that allow for the storage of hydrocarbon fluids is classified as (sedimentary—porous—non-porous—volcanic).
11. Maged works twenty twelve-hour shifts every month. This means he works for (120—240—12—20) hours a month.
12. A vehicle on which a tank is mounded to store fluids is called (tank—ship-tanker—cargo—tanker).

Good luck!