



# CATALYZER

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## Editorial

The day of the final battle has come. Students are expected to find the theoretical tasks difficult, at least at first sight. In any case, we wish them good luck! The mentors will enjoy a one day cruise to Saronic Bay, something they deserve, after a demanding translation procedure, following a hectic 2<sup>nd</sup> Jury Meeting.

The assessment of the Practical Exam is in progress and we present exclusive photos.

You will also have the chance to read an interesting article about the origin of the Nb and Ta names.

A reading guide for the Greek language is presented.

## WAITING FOR THE BIG DAY...



Tuesday's jury meeting bowed along without any major disputes. However, small corrections and changes kept mentors in alert until Wednesday's noon. The tasks have been characterized as pretty good with the main difficulty being the physical chemistry part, whereas they seem to be too many.

Professor Constantinos Efstathiou, representing the Scientific Committee, declared that the exam contained questions of gradual difficulty and ensured that a fair judgement will follow. He also made the prediction that it will be a good distribution of marks, but without any 125/125.

Within the framework of the exam translation we had the opportunity to talk with Angela Koch, who is the scientific observer for the German team. Next IChO is going to be held in Kiel and we asked for her opinion on our organization. She replied that it was very impressive and very interesting to the German delegation to see all the complexity of the whole organization. Moreover, they spotted some defects, which gave them good ideas, but not major problems. As a conclusion she gave us a grade of 8 out of 10!

**ΓΗΡΑΣΚΩ Δ' ΑΕΙ ΠΟΛΛΑ  
ΔΙΔΑΣΚΟΜΕΝΟΣ**

**“Getting older,  
I learn more and more”**

This proverb belongs to the Athenian nomothete Solon, one of the seven wise men of Hellas.

## COMMENTS ON THE THEORETICAL EXAMINATION

*We are having a great time here and Greeks have been greatly hospitable. We are looking forward for the rest of the competition. It's a challenging exam for everyone, but we think that our students will do their best and we will be pleased from their performance. Our curriculum is probably less heavy on the organic and more heavy on the theoretical chemistry. So, we are comfortable with the exam. We congratulate the Greeks for putting together a good test for the students.*

Todd Trout (United States)

*It seems that the tasks are rather complex and complex problems are good for our students. On the other hand, it seems to me that the number of the problems is rather large, but strong students would not face any difficulties with that. We will get a good distribution of marks, which is ideal for a set of problems.*

Eremin Vadim (Russia)

*The Greek committee has been extremely careful to try to have an absolutely perfect paper to be clear to all the students. It took a great deal effort to do that. The students should be able to work well on the exam and with some luck they'll get a good distribution of medals.*

Gordon Bates (Canada)

*The organization looks nice. It appears that we enjoy Greek hospitality. The tasks are not too difficult and not too many either. They are appropriate. We have been waited the tasks to be connected with natural products being in Greek dishes.*

Mario Anastasia (Italy)

*Every year the questions are getting more and more difficult and this year what is special about the theoretical exam is the high number of questions and I think that many of the students will run out of time. But, anyway I wish good luck for them and I think that they are able to have a good exam.*

Roozbech Kiani (Iran)



*Discussing the tasks...*



*Peter Wothers (United Kingdom)  
and Gordon Bates (Canada)*



*Eremin Vadim,  
the Head Mentor of Russia*

**The assessment of practical tasks  
has begun!**



## ANYONE CAN READ GREEK!

All the letters and vowel combinations are always pronounced the same in Greek. There are no silent letters, as in English (k in knife), or letter combinations that have a variable pronunciation. Consequently anyone can read Greek. Understanding the sounds, correct spelling and syntax are quite another matter. Greek is a very difficult language. The alphabet has only 24 letters and they are listed in the table. As you can see we have:

- Two different vowels “ο” and “ω” that sound exactly the same.
- The three vowels “η”, “ι” and “υ” also sound exactly the same.

There exist the following vowel combinations:

“ει”, “οι” and “υι” which correspond to the same sound as “η”, “ι”, “υ” and so we have a total of 6 long <e>.

Other vowel combinations are as follows:

αι = ε

αυ = af or av

ευ = ef or ev

ου = ou or short u

Thus, spelling Greek words correctly is no simple matter. As you can imagine, there are quite a number of general rules with many exceptions.

Verbs ending with the “ezo” sound are usually spelled with an “ι”, for example:

μυρίζω = <mirizo> : I smell,

γαυγίζω = <gavgizo> : I bark,

but

αθροίζω = <athrizo> : I add (with an “οι” instead of a “ι”)

δακρύζω = <dakrizo> : tears come to my eyes (with an “υ” instead of a “ι”)

Vowels ending with an “ο” sound are always written with an “ω”.

Some examples:

Hotel is “ξενοδοχείο” and is pronounced <ksenodochio>, not <ksenodocheio> which is the erroneous or Erasmic pronunciation.

Finally, we use “ ” to separate vowel combinations.

Product is “προϊόν” and is pronounced <proion>. Without the “ ” it would be pronounced <prion>.

Notice that we put an accent on the syllable that is stressed in the case of multi-syllable words.

I encourage you to practice your Greek by writing your name with Greek characters so that the Organizers might pronounce it correctly.

It would probably be best if you used “ι” rather than any other vowel or vowel combination to produce the long <e> sound. Keep it simple.

Letter	Greek name	Sound-pronunciation
α A	alpha	short <a> as in “hat”
β B	vita	<v> as in “very”
γ Γ	yamma	<y> as in “yacht”
δ Δ	delta	<th> as in “then”
ε E	epsilon	short <e> as in “get”
ζ Z	zeta	<z> as in “zoo”
η H	eta	long <e> as in “gene”
θ Θ	theta	<th> as in “think”
ι I	yiota	long <e> as in “gene”
κ K	kappa	<k> as in “kite”
λ Λ	lamda	<l> as in “little”
μ M	mi	<m> as in “must”
ν N	ni	<n> as in “night”
ξ Ξ	ksee	<x> as in “taxi”
ο O	omicron	short <o> as in “hole”
π Π	pee	<p> as in “play”
ρ P	rho	<r> is in “race”
σ Σ	sigma	<s> as in “slow”
τ T	taf	<t> as in “telephone”
υ Y	ipsilon	long <e> as in “gene”
φ Φ	fee	<f> as in “fish”
χ X	he	<h> as in “hat”
ψ Ψ	psi	<p> as in “play”
ω Ω	omega	long <o> as in “hole”

**Dr Andreas Tsatsas**  
**Assoc. Professor**



## GRAINS OF GREEK MYTHOLOGY IN THE PERIODIC TABLE



*Nb (left) and Ta (right)  
Niobium is used in the aviation industry  
Tantalum is used in making medical skull plates*

**T**antalos, a mythical king of Hellenic Minor Asia, was the father of Niobi and Pelops. Niobi was a heroine of the Greek mythology, while Pelops was the parent of the Mycenaean civilization.

The myth has it that Tantalos revealed the secret for the nectar preparation to the mortals, punished for that by the Olympian Gods. He was condemned to eternal thirst and hunger tied in a lake without ever being able to drink, while a branch full of fruits was removed whenever he reached for it.

Tantalum ( $_{73}\text{Ta}$ , an element of the 5<sup>th</sup> group of the periodic table and of the 3<sup>rd</sup> row of transition metals), owes its name to the Tantalean torture of those who tried to work with tantalum pentoxide ( $\text{Ta}_2\text{O}_5$ ), which is only dissolved in fused potassium bisulphate.

Tantalum is always spotted in its minerals along with another element initially named columbium (Cb). The two elements' similarity for a long time led to the assumption that there was only one element. Finally, Rose clearly pinpointed the existence of a separate element, which he proceeded to name Niobium ( $_{43}\text{Nb}$ , 5<sup>th</sup> group, 2<sup>nd</sup> row of transition metals) from Tantalos' daughter's name. Rose assumed, wrongly, that there was also an element named Pelopium, which was later proved to be the previously mentioned niobium.

**Dr Despina Stambaki**  
Ass. Professor

### Program of the day

#### Students

<b>8:00-9:00</b>	Breakfast at SC
<b>9:00-14:00</b>	Theoretical Examination at SC (lunch during the Exam – buffet)
<b>15:00-20:00</b>	Excursion to Epidavros and Nafplion
<b>21:00</b>	Dinner at SC

#### Mentors

<b>6:30-7:30</b>	Breakfast at Hotel
<b>8:15-19:20</b>	One Day Cruise – Saronic Gulf (lunch included)
<b>21:00</b>	Dinner

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