TANTA UNIVERSITY
Faculty of Science
Department of Physics

Fourth Academic Year of Biophysics Group

Course Code N4: PH 4163 — First Term (January 2017) — Two Hours
Date : Wednesday 28 / 12 / 2016 — Regular Students

Examination of Nuclear Detector & Accelerators (Nuclear Physics)

Total Assessment mark : 100

Answer the following Questions:

1) Explain (in brief) each the following:

- Specific ionization.
- Dead Time – Curie.
- Energy Resolution.
- Pair production.
- Thermal Neutron.

2) Draw Schematic for a nuclear electronic detection system, explain each of its components as possible.

3) Give reasons or (Motivate) for each of the following:

- Ge (Li) is more widely than Si (Li) detectors.
- Dependence of Compton edge energy on incident γ-ray energy.
- Windowless flow-type proportional counter.
- Drawback of ionization chambers.

4) Put mark ($\surd$ or $\times$) and give reasons in front of the following sentences:

- Neutrons reach with nuclei at all level.
- Category of allernating current (A.C) applies to all type of accelerators in which particles acquire their energies.

Best Wishes,,

	TANTA UNIVERSITY- Faculty of Science -Department of Physics			
	EXAM FOR LEVEL FOUR STUDENTS OF BIOPHYSICS			
	COURSE TITLE	RADIOBIOLOGY I		COURSE CODE: BP4180
DATE:22-1-2017	.....	TERM:FIRST TERM	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

1. **Write down about DNA Strand breaks, cell survival curves.**
   (15 degree)

2. **Define the following:**
   Free radicals, linear energy transfer and parameters of survival curve (PE, Dq, D10, n).
   (10 degrees)

3. **a- true or false:**
   1- multi-target model is one of survival models,
   2- Linear and quadratic contributions to cell killing are equal when the dose is equal to ratio of α and β.
   b- 1- Radiation damage to mammalian cells can operationally be divided into three categories ..., ..., and ...
   2- 1R = ... C per Kg of air
   (10 degrees)

4. **Discuss in details:**
   a- Repair of radiation damage.
   b- Linear energy transfer.
   (15 degree)

EXAMINER	DR. AHMED AMMAR

☺ BEST WISHES ☺

الفيزياء الحديثة

	TANTA UNIVERSITY- Faculty of Science -Department of Physics			
	EXAM FOR SENIORS STUDENTS OF GENERAL PHYSICS			
	COURSE TITLE	Materials Science		COURSE CODE:PH4193
DATE:	17- 1 - 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Hint: Illustrate your answer by schematic diagram as possible.

First Question:

1. Cite three criteria that are important in the materials selection process.[10marks]
2. Briefly describe covalent and metallic bonds. [10marks]

Second Question:

1. State and explain Brag's law to determine the interplanar spacing for crystal structures that has cubic symmetry. [10marks]
2. Name two types of Impurity point defects are found in solid.

Provide a brief written about **the factors affect** these defects (*Impurity point defects*) in solid, and finally **Given examples** of these defects. [20marks]

Third Question:

1. Sketch/describe unit cells for sodium chloride and zinc blende. [10marks]
2. Briefly write short notes about the structure and properties of Graphite.[10marks]

Fourth Question:

1. List the Imperfection types in ceramics. [10marks]
2. Briefly explain: [20marks]

- Diffusion in Ionic materials.
- Plastic deformation in crystalline and non-crystalline ceramics.

EXAMINER	DR. REDA EL-SHATER

☺ BEST WISHES☺

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS		
	FINAL EXAMINATION OF 4TH YEAR PHYSICS STUDENTS		
COURSE TITLE:	Astronomy I		COURSE CODE: PH 4103
21/1/2017	TERM: FIRST	TOTAL ASSESSMENT MARKS:100	TIME ALLOWED: 2 HOURS

Answer the following questions:

First question:- (20 Marks)

-Put true or false and correct the false one(s):

1. Mars has strong magnetic field.
2. Mercury is slow and retrograde.
3. Earth's core temperature is not comparable to the surface temperature of the Sun.
4. Earth's magnetic field is the result of our planet's large, permanently magnetized iron core.
5. Mercury probably cooled and solidified faster than Mars because it is smaller.
6. Jupiter emits more energy than it receives from the Sun
7. Ganymede is the largest moon in the solar system.
8. Trojan asteroids orbit at Saturn's orbit.
9. Human can breath on Mars.
10. Moon and Mercury have wide variations in surface temperature

Second question: - (20 Marks)

Fill in the spaces

1. The Kuiper belt exists outside the orbit of ----------.
2. ---------- produces tides in Earth's oceans.
3. Comets from the ---------- cloud wander into the inner solar system.
4. Moon has large dark flat areas, due to lava flow, called ----------.
5. ---------- has the biggest number of moons.
6. Earth's ---------- protect us from the harsh realities of interplanetary space.
7. Europa is one of the ---------- largest moons.
8. Saturn largest moon is ----------.
9. ---------- has largest volcano in solar system.
10. ---------- are the bright flashes of light from micrometeoroids hitting the atmosphere.

Third question:- (30 Marks)

1. Give a brief description of Jupiter's Magnetosphere. **(15 Marks)**
2. What are the differences and similarities between jovian planets? **(15 Marks)**

Fourth question:- (30 Marks)

1. What is the greenhouse effect, and what effect does it have on Earth's surface temperature? **(15 Marks)**
2. **a-** Give short note about comets; support your answer with drawing. **(15 Marks)**

(Best wishes -------- Dr. Yasser Abdou)

ثريا ، حيوا

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS		
	EXAMINATION OF 4TH YEAR BIOPHYSICS STUDENTS		
COURSE TITLE:	Astrobiology I		COURSE CODE: 4103
21/1/2017	TERM: FIRST	TOTAL ASSESSMENT MARKS:50	TIME ALLOWED: 2 HOURS

Answer the following questions:-

First question:- (10 Marks)

Fill in the spaces

1. Planetary science help us in understanding ---------- and --------.
2. Two Greek's schools of thought led to two fundamentally different conclusions about the possibility of ---------- life.
3. Galileo discovered that Jupiter has ---------- satellites.
4. The universe was born without any elements heavier than ---------- and -------.
5. ---------- gas regulates Earth's climate.
6. Earth is --------- rich, but life is -------- -based.
7. According to Kepler's first laws: All objects orbit on ------- paths, with the central object at one focus.

Second question:- (15 Marks)

1. Explain how Earth's geology has made our planet habitable.
2. Name the six characteristics of life are.

Third question:- (15 Marks)

1. "Most of the material from which we and our planet are made was created inside stars that died before the birth of our Sun" explain briefly the evidences that support this hypothesis.
2. Explain with drawing what is the green house effect and its effect on Earth's habitability.

Fourth question:- (10 Marks)

Explain how the simplest molecules had turned into complex organic molecules by the researchers Miller & Urey.

(Best wishes -------- Dr. Yasser Abdou)

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS		
	EXAMINATION OF 4TH YEAR BIOPHYSICS STUDENTS		
COURSE TITLE:	Astrobiology I		COURSE CODE: 4103
21/1/2017	TERM: FIRST	TOTAL ASSESSMENT MARKS:50	TIME ALLOWED: 2 HOURS

Answer the following questions:-

First question:- (10 Marks)

Fill in the spaces

1. Planetary science help us in understanding ---------- and --------.
2. Two Greek's schools of thought led to two fundamentally different conclusions about the possibility of ---------- life.
3. Galileo discovered that Jupiter has ---------- satellites.
4. The universe was born without any elements heavier than ---------- and -------.
5. ---------- gas regulates Earth's climate.
6. Earth is --------- rich, but life is -------- -based.
7. According to Kepler's first laws: All objects orbit on ------- paths, with the central object at one focus.

Second question:- (15 Marks)

1. Explain how Earth's geology has made our planet habitable.
2. Name the six characteristics of life are.

Third question:- (15 Marks)

1. "Most of the material from which we and our planet are made was created inside stars that died before the birth of our Sun" explain briefly the evidences that support this hypothesis.
2. Explain with drawing what is the green house effect and its effect on Earth's habitability.

Fourth question:- (10 Marks)

Explain how the simplest molecules had turned into complex organic molecules by the researchers Miller & Urey.

(Best wishes -------- Dr. Yasser Abdou)