المستوى الرابع . فيزياء حيوية . شرح آدمي (ع ٤٤٤)

Mansoura University
Faculty of Science **21 Jan . 2012**
Zoology Department **Time: 2hours**

4th year Biophysics
Human Anatomy

Give short account on each of the following questions :

1- Types of bones. (11 marks)

2- Skeleton of the upper and lower limbs. (12 marks)

3- Synovial joints and their subtypes. (14 marks)

4- Salivary glands and their functions. (12 marks)

5- Differences between :

A - Right and left lungs. (8 marks)

B – Arteries and veins. (13 marks)

Best wishes

Prof.Dr: Fathy abd-El Ghany

المستوى الرابع - فيزياء حيوية - أشباه موصلات (ف ٤١١)

Mansoura University **Faculty of Science** **Physics Department** **Course Title: Semiconductor** **Date: 17-1-2012**		**Jan. 2012** **Exam Type: Final** **Four Level: (Biophysics)** **Time: 2 Hours** **Full Mark: 80 Mark**

Answer **the following questions:-**

Q1: **[25 Mark]**

a- What is a semiconductor?

b- Discuss the semiconductor applications

c- How do semiconductors work?

Q2:- [25 Mark]

a- How to made semiconductor?

b- Write briefly on: Importance of semiconductor

c- Explain the types of semiconductor

Q3:- [30 Mark]

Write with details on:-

a) Photoconductivity

b) Oorganic semiconductor

c) Luminescence

With best wishes

Examiners

أ.د. أبوبكر البديوى **د. أنور مجاهد**

المستوى الرابع - فيزياء حيوية - صوء متقدم (ف ٣١٦)

Mansoura University
Faculty of Science
Physics Department.
Subject: Physics(316)
Title: Advanced optics

Final term exam – First Term
Fourth level /Biophysics
Date: Jan. 2012
Allowed Time: Two hours.
Full Mark: 80

Answer the following questions:

[1] a- Describe, in details, how you would produce elliptically and circular polarized light ? **[18] Mark**

b- Write briefly about the half wave plate? **[8] Mark**

[2] a- Discuss the normal dispersion phenomenon using Cauchy's equation? (clarify your answer with suitable drawing) **[18] Mark**

b- Explain an experimental demonstration of anomalous dispersion of sodium vapor? **[10] Mark**

[3] a-Considering an isolated small particle in vacuum illuminated with monochromatic Plane polarized light, deduce Rayleigh's equation for elastic light scattering? **[20] Mark**

b- Discuss why the sky is blue? **[6]Mark**

Best wishes: *Prof. Dr. Kermal El-Farahaty*

المستوى الرابع - فيزياء حيوية - فيزياء المواد الحيوية والبديلة (ف ح ٤١٣)

Mansoura University
Faculty of Science
Physics Department
Course code: Bio-Phys 413

First semester 2011-2012
Date: 14.-1-2012

4th Level Biophysics students
Full Mark: 80
Allowed time: 2 hours
Course title: Physics of Biomaterials and Their Substitutions

Answer all the following questions: **Marks**

1- a- Write on contact lens and list the principle properties that are required in addition to the optical properties. 10

b- Bioglass® materials and glass-ceramics are considered the most important surface-reactive biomaterials use as implants. Write on properties, composition, applications and compatibility of these materials? 10

2- a- Write on amalgam as a direct restoration, chemical makeup and indication of using/not using amalgam. 10

b- Discuss the elastic properties and constants of different materials. 10

3- a- Give the meaning of isotropy; classify the materials according to isotropy property? 10

b- List the different aspects of the biomaterials needed to be explore before making decision about the applications of biomaterials in medicine or biology. 10

4- a- List the main types of Biomaterials and explore the main advantages, disadvantages of each type? 10

b- Give the definition of a biosensor; make use of an example during your discussion? 10

Best wishes:

Examiners: أ.د/ مصطفى كمال * د. هانى كمال د. صفاء عبدالمقصود

ع فيزياء حيوية - فاع ٤١٠ فيزياء حيوية تجريبية

جامعة المنصورة		Mansoura University
كلية العلوم		Faculty of Science
قسم الفيزياء		Physics Department
المنصورة – مصر		Mansoura - Egypt
January Examination 2012		
Subject: Physics 410		Fourth Year
Experimental Biophysics		Time: 2 hours
Full Mark: 80		Date: 31/12/2011.

Answer only <u>three questions</u> from the following:

Use the following constants when needed

Velocity of light in vacuum c =3×10^{8} m/s *Planck's constant (h) = 6.63×10^{-34} J.s*

Atomic mass unit (a.m.u) = 1.66×10^{-27} Kg *electronic charge (e) = 1.60×10^{-19} C.*

1	a	Explain in details systematic error and explain in details the different types of systematic errors?
	b	What is meant by; Precision Propagation of errors Dipole relaxation
	C	In a repetitive experiment for measuring the acceleration due to gravity the following values was obtained; 9.80, 9.88, 17.0, 9.00, 10.00, 9.12, 9.65, 9.75, 9.82, and 3.16. Calculate mean, standard deviation and standard deviation of the mean?
2	a	Define mass spectroscopy and its basic steps?
	b	Write on; Inductive Coupled Plasma (ICP) Betatron
	c	Discuss column chromatography separation technique?
3	a	What is meant by dielectric spectroscopy then list their mechanisms and discuss one of them?
	b	Discuss X-ray spectrum show the meaning of the following notation (K_{α}, L_{β})?
	c	Single charged lithium ion of mass 7 atomic mass unit (amu), librated from a heated anode, are accelerated by a difference in potential of 400 volts between anode and cathode. They then pass through a hole in the cathode into a uniform magnetic field of strength 800 Oresteds perpendicular to their direction of motion. Determine the radius of the path of the ions?
4	a	Differentiate between rotational and vibrational energy states?
	b	If the force constant of the C-H bond in CH_4 molecule is 500 Nm^{-1}, find the frequency of radiation absorbed when the molecule transfers from one vibrational level to the one above?
	c	Write down Bohr postulates of Hydrogen atom?

With our best wishes:

Dr. Amr Mohamed Abdelghany

Mansoura University Faculty of Science, Physics Department	بسم الله الرحمن الرحيم 1st Term Exam 2011/2012 For the 4th. Year Biophysics Students (Phys. 414)	Time Allowed : Two Hours Subject : Ultrasonic and its medical applications Total Marks = 80 M

Answer the following questions:

1 – a) In short, clarify the origin of piezoelectric effect. (10 **M**)

b) Discuss the difference between the X-cut and Y-cut crystals in both structure and applications. (10 **M**)

2 – Comment on the differences between the Pulse-Echo and the Through-Transmission testing techniques. (20 **M**)

3 – Explain one case where the immersion testing technique is essential. (20 **M**)

4 – a) Explain one use for the angle beam transducers. (10 **M**)

b) List four major advantages and four common disadvantages for the ultrasonic testing techniques. (10 **M**)

Best Wishes from

Prof.Dr. / Maher El-Tonsy