

الفصل الدراسي: الأول  
تاريخ الإمتحان: 20-1-2012  
الزمن: ساعتان  
الدرجة الكلية: 60 درجة  
كود المادة: Z(204)



جامعة: المنصورة  
كلية: العلوم  
قسم: علم الحيوان  
المادة الدراسية: حليات وفقاريات  
الفرقة الدراسية: المستوى الثاني :  
برامج: نبات-كيميا، حيوان-كيميا، ميكروبيولوجي، علوم بيئية.

### Answer the three following questions

**Question one :Complete the followings: (20 marks ,one for each space):**

- 1-Animals which have extra embryonic membranes are called-----1----- .
- 2-Stable body temperature is a character of a class----2-----and-----3----- .
- 3- Amphioxus belongs to subphylum-----4-----while pertomyzon belongs to subphylum-----5----- .
- 4-Hypernation characterize class-----6----- .
- 5-The number of gonads in amphioxus is -----7---and in female pertomyzon is -----8-----but in bolti is-----9----- .
- 6-The endoskeleton is cartilaginous in class----10----- .
- 7-Jaws are absent in ----11-----and replaced by-----12-----.
- 8-All chordates are sex separated except -----13-----.
- 9-Cephalochordates are characterized by-----14-----,-----15-----and----16----- .
- 10- Fishes and-----17---are not amniotes but -----18---and----19-----are amniotes.
- 11-The endoskeleton is cartilaginous in-----20----- .

**Question two:-Clarify the following :(20 marks)**

- 1-Special characters of class thaliacea & larvacea .
- 2-Parastic modifications of cyclostomes.
- 3- Comparison between chordates & non-chordates.
- 4-Digestive OR nervous system of amphioxus.

**Question three: Mention the name of the animal or the group which have the following characters:(20 marks)**

- 1-The adults migrates from sea water to fresh water,for metamorphoses  
And the larvae return to sea water .
- 2-The larvae with tail, nerve cord& notochord but adult is sessile.
- 3-The exoskeleton is the cycloid scales.
- 4-The only fishes with internal fertilization.
- 5-The body covered with keratinized horny scales for prevent water loss.
- 6- Female have mammary glands to feed young.
- 7-The right ovary and oviduct are reduced.
- 8-Fishes with short ileum with spiral valve .
- 9-Charactrized by presence of five clawed toes.
- 10-Has different forms of teeth.
- 11- Shows the phenomena of retrogressive metamorphosis.
- 12-Have hollow bones.
- 13-Has keratinized epidermal appendages such as nails, hairs & horns.
- 14-Has no stomach ,liver or kidney.
- 15-Have two lungs with 9 air sacs.
- 16-Hermaphordite but never self fertilization takes place .
- 17-The caudal fin is heterocercal and have two claspers.
- 18-Has the mid-gut diverticulum for enzyme secretion.
- 19-Have five naked gill slits and spiracle.
- 20-Has the air bladder as a hydrostatic organ.

**With best wishes**

Dr. Fawkeia el-saiaad.

Dr. Yosra fouda.

Mansoura University  
Faculty of Science  
Zoology Department



**First Term Exam, Jan. 2012**

Education year: Second level

Program: Biology

Time: 2 hours

Subject: Zoology

Date: 28/ 12/ 2011

Course: Introduction to Embryology

Code: Z 201

Full Mark: 60

**Answer all the following questions:**

**Q1) A- Choose the correct answer of the following: (10) Marks**

- 1- Gastrulation of Birds has been taken by ..... formation.  
a- hypoblast                      b- primitive streak                      c- both
- 2- At the end of gastrula of Toad, a new cavity called ..... is formed  
a- blastocoel                      b- archentron                      c- blastopore
- 3- The third cleavage of Amphioxus is carried out by ..... horizontal plane.  
a- one                      b- two                      c- four
- 4- In human, the epiblast layer will form the ----- around the embryo.  
a- amnion                      b- chorion                      c- yolk sac
- 5- In Bird's embryo, Koller's sickle is referring to the ..... end.  
a- anterior                      b- posterior                      c- middle
- 6- The Mammalian cleavage is ..... holoblastic cleavage.  
a- unequal                      b- rotational                      c- meroblastic
- 7- The circulatory system of an embryo will differentiate from .....  
a- endoderm                      b- mesoderm                      c- ectoderm
- 8- The compaction phenomenon undergoes during the cleavage of .....  
a- Human                      b- Birds                      c- Amphioxus
- 9- The implantation occurs where the ..... hang and exert their microvilli on the endometrium epithelium.  
a- trophoblast cells                      b- inner cell mass                      c- amnion
- 10- The appearance of ..... on toad eggs indicates of their fertilization.  
a- dark animal hemisphere                      b- gray crescent                      c- both of them

**Q1)B- Discuss TWO of the following, adding labeled diagram: (10) marks**

- 1- Steps of Toad gastrulation.
- 2- Cleavage of Birds.
- 3- Embryonic membranes.

**Q2) A- Choose the correct answer:** **(4) marks**

- 1-The time needed to go from spermatogonium to a sperm .....  
a- 64 days                      b- 120 days                      c- 1month
- 2- Golgi apparatus form ..... during spermiogenesis.  
a- Nucleus                      b- tail                      c- acrosomal cap
- 3- Oogenesis starts at .....  
a- Intrauterine life      b- childhood                      c- puberty
- 4- During the luteal phase corpus luteum secretes .....  
a- Progesteron                      b- estrogen                      c- A+B

**Q2)B- Discuss briefly the cyclic changes happened to uterine endometrium in response to ovarian cycle.** **(8) marks**

**Q2)C- Illustrate the steps of spermiogenesis.** **(8) marks**

**Q3)A- Define gastrula and discuss the formation of Amphioxus gastrulation.** **(7.5) marks**

**Q3 B- Give short note of the steps of fertilization.** **(7.5) marks**

**Q3) C- Choose the correct answer:** **(5) marks**

- 1-The sperm secretes ..... to penetrate the corona radiate.  
a- hydruronidase                      b- acrosin                      c- oxylase
- 2- The egg of Toad is classified as .....  
a- mesolecithal                      b- oligalecithal                      c- alecithal
- 3- The cleavage of Amphioxus is .....  
a- meroblastic                      b- equal holoblastic                      c- unequal holoblastic
- 4- Gastrulation of Amphioxus starts with ..... of macromeres.  
a- involution                      b- invagination                      c- flatten
- 5- Mesoderm gives rise to .....  
a- notochord                      b- spinal cord                      c- neurons

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**Dr. Manal Ramadan .....Dr. Heba EL-Gaweed .....Dr. Eman Bakr**

صوفیائی (۲۰۱۲) - علم الفیضہ - کیمیا صوفیہ - کیمیا صوفیہ

Mansoura University Faculty of Science Physics Department		<b>First Term Exam.</b> Date: 1-1-2012 Time allowed : 2 hours Full Mark: 80 Mark
Subject: <b>Physics</b>		Course: <b>ف 221 Physical Optics</b>

**Answer the Following Questions**

- [1]a- Demonstrate an explanatory diagram of the optical arrangement of Young's experiment on interference. Drive the theory of interference for this experiment. [10 Marks]
- b- Explain how you can determine the thickness of a thin sheet of transparent material using Fresnel's biprism. [8 Marks]
- c- Good fringes were observed with Michelson interferometer with monochromatic light, when the movable mirror is shifted 0.015 mm, a shift of 50 fringes is observed. What is the wavelength of light used. [8 Marks]


- [2] a- Discuss Fraunhofer diffraction using a rectangular slit. Drive an expression for the intensity distribution of the observed diffraction pattern. [15 Marks]
- b- A parallel beam of monochromatic light is allowed to be incident normally on a plane spectra grating having 6000 lines/cm and a second order spectral line is observed to be deviated through  $30^\circ$ . Calculated the wavelength of the spectral line. [12 Marks]

- [3]a- Explain with the necessary theory of interference in thin films due to reflected light. [9 Marks]
- b- How can you obtain polarized light by refraction? [9 Marks]
- c- In a Jamin's refractometer, two evacuated tubes each of length 20 cm are placed in the two beams. A gas at a known temperature and pressure is slowly and 100 fringes cross the centre of the field of view. Calculate the refractive index of the gas. (where the used source have wavelength  $\lambda = 5460 \text{ \AA}$ ). [9 Marks]

**Good Luck**

**Examiners:** Prof. Dr. Taha Sakkar, Prof. Dr. Eman seisa, Prof. Dr. Mohamed Kabeel

المستوى الثاني - صولوسيا + مجموعة اسولوسيا - كيمياء العناصر الخفيفة (10 انا)

Mansoura University		First Term 2 <sup>nd</sup> Level
Faculty of Science		(Geology, Microbiology, Botany, Environmental, Zoology/ Chem)
Chemistry Department		Date : Jan. 2012
Subject: Chemistry		Time Allowed: 2 hours
Course(s): Inorganic Chemistry, Chem 221		Full Mark: 80 Marks

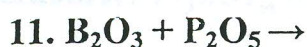
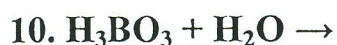
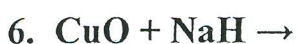
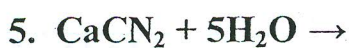
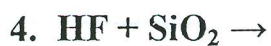
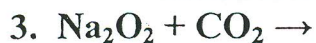
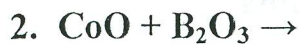
**Answer the Following Questions**

1- Comment on (10 only) of the following: (30 Mark)

1. Liquid hydrogen is used as fuel in large booster rockets.
2.  $\text{BF}_3$  is Lewis acid
3. White phosphorous should never be allowed to come in contact with the skin.
4. Lithium is similar to magnesium.
5. Group II elements are heavily hydrated than group I elements.
6. Calcium dihydrogen phosphate is used in food industry.
7. Nitrogen oxides are pollutants.
8. The great reactivity of  $\text{F}_2$ .
9. Photochromic eye glass is made by adding a small amount of  $\text{AgCl}$ .
10.  $\text{H}_3\text{PO}_2$  is a strong reducing agent.
11. Aqueous solutions of  $\text{Be}(\text{II})$  salts are acidic.
12.  $\text{Cs}^+$  conducts electricity more than  $\text{Li}^+$  in aqueous solution.
13. Malathion has a great effect on insects rather than human.

P.T.O

2. Complete 10 only of the following equations: (30 mark)



3. Try on (4 only) of the following:

(20 Mark)

a. Contact process for production of  $\text{H}_2\text{SO}_4$

b. Structure of  $\text{B}_2\text{H}_6$ .

c. Ostwald process for the production of  $\text{HNO}_3$ .

d. Allotropy of Carbon

e. Ortho- and para hydrogen.

f. Isolation of silicon in pure form



المستوى الثاني - كيمياء حيوية  
قسم الكيمياء الحيوية  
العلوم البيئية  
(2012)

Mansoura University  
Faculty of Science  
Botany Department

Final Examination in Botany

First term: Jan. 2012

Educational Year: Second Level

Program (Branch): Biology

Subject: Bot. (201) Course(s): Introduction to Plant Ecology & Taxonomy

Time: 2 hrs Date: 13/ 1 /2012 Full mark: 60

Question mark: 20

Answer the following questions:

Q.1 A- Answer each of the following either true (√) or false (x): (10 marks)

- 1- Climax stage is the final stage of the vegetation development after stabilization.
- 2- Obligatory halophytes are plants requiring salinity throughout their life.
- 3- Hygroscopic water in soil is the main source of water for plants.
- 4- Drought escaping plants are short-lived plants.
- 5- Foliose lichens are the first stage in xerosere succession.
- 6- Primary succession starts on the extreme bare areas.
- 7- Physiological drought means that the available soil moisture content is very low and climate is dry.
- 8- Floating hydrophytes are plants growing below the water surface.
- 9- Non-succulent xerophytes are called true xerophytes.
- 10- Residual soil parent material has been transported from the original rock to the place where it is deposited.

B- Complete the following sentences: (10 marks)

- 1- Vegetation can be classified into ....., ..... and .....
- 2- The main basic processes in soil development include ....., ..... and .....
- 3- Communities of mesophytic wood plants can be classified into ....., ..... and .....
- 4- The main source of soil water which available to plants is called .....

Q.2 A- Write on **Two Only** of the following: (10 marks)

- 1) Evolution of vegetation.
- 2) Hydroxere succession (drawing only).
- 3) Transported soil parent materials.

B- Describe the general characters of families: Cruciferae – Leguminosae. (illustration is necessary). (10 marks)

Q.3 Compare between each pair of the following:

- 1) Family: Gramineae and family: Cyperaceae. (5 marks)
- 2) Hypogynous flower and epigynous flower. (5 marks)
- 3) Polychasium inflorescence and umbel inflorescence. (5 marks)
- 4) Dicots and monocots. (5 marks)

Examiners:

Prof. Ibrahim Mashaly  
Prof. Sayed El-Halawany

Prof. Mohamed Abo-Ziada  
Dr. Ehsan El-Habashy



Mansoura University  
Faculty of Science  
Physics Department  
Course code: Bio-Phys 211  
Course title: General Biophysics



First semester 2011-  
2012  
Date: 22-1-2012

2<sup>nd</sup> Level students

برامج (فيزياء حيوية- ميكروبيولوجي-  
كيمياء حيوان-كيمياء حيوية-كيمياء  
نبات)

Full Mark: 80  
Allowed time: 2 hours

Answer all the following questions:

Marks

- |    |    |   |   |
|----|----|---|---|
| 1- | a- | When an animal takes a step, the leg swing naturally from the hip bone, much like a pendulum in a gravitational field. Derive an expression for the time taken of a leg to swing once a time?   | 7 |
|    | b- | Define the following:<br>Depolarization – Activity of a radioactive source - Hematocrit- Heat Flux  | 6 |
|    | c- | If you have 4 gram of pure $^{40}\text{K}$ emits $2 \times 10^5$ $\beta$ - particles/sec. Calculate the decay constant $\lambda$ and half life time $t_{1/2}$ ? (Avogadro's number = $6.02 \times 10^{23}$ ).   | 7 |
| 2- | a- | If we have 1 mole of glucose, How much energy will be produced during metabolism?   | 7 |
|    | b- | Calculate the photon flux at 1 m and 2 m from a Cs $^{137}$ gamma source of activity 800 MBq?   | 6 |
|    | c- | Describe with drawing the continuous and characteristic X-rays.   | 7 |
| 3- | a- | Derive an expression to calculate half life time of a radioactive source.   | 7 |
|    | b- | Write on resonant frequency and various sensations observed by humans subjected to variations of different frequencies.   | 6 |
|    | c- | Explain the physical concept to measure signals from the heart using electrocardiogram. Draw and explain an ECG chart?  | 7 |
| 4- | a- | Compare between $\alpha$ - particles, $\beta$ - particles and $\gamma$ -rays?   | 7 |
|    | b- | Discuss the basic principle of magnetic resonance imaging (MRI).  | 6 |
|    | c- | i. Calculate the capacitance per unit area of an unmyelinated axon of membrane thickness is $b = 6 \times 10^{-9}$ m knowing that the material in the axon membrane has dielectric constant $K= 7$ and $\epsilon_0= 8.85 \times 10^{-12}$ s/ohm-m.<br>ii. Calculate the number of elementary charges per $\text{m}^2$ if the charge is $1.6 \times 10^{-19}$ C and the potential difference = 70mV. | 7 |

Best wishes:

Examiners:

د. نبيل قناوى

د. محمد منصور

\* د. هانى كمال