المستوى الثاني - مجموعة البيولوجي - حبليات وفقاريات (ع ٢٠٤)

جامعـــــــــة: المنصورة
كليـــــــــة: العلـــوم
قســـــــــم: علـم الحيوان
المادة الدراسية: حبليات وفقاريات
الفرقة الدراسية: المستوى الثانى :
برامج: نبات-كمياء،حيوان-كمياء،ميكروبيولوجى ،علوم بينية.

الفصـــــل الدراسى: الأول
تاريـــخ الإمـــتحان: 20-1-2012
الزمـــــــــــن: ساعتان
الدرجـــة الكليـــة :60 درجـــة
كود المادة: Z(204)

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 **<u>or</u>** 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.

المستوى الثاني - كيمياء ونبات مدخل إلى علم الأجنة (٢٠١٢)

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- Progestron 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

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

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

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- Discus 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^{o} 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 $\lambda = 5460\ A^{o}$). **[9 Marks]**

Good Luck

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

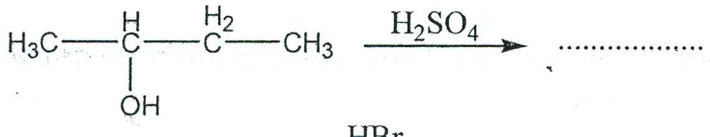
Mansoura University
Faculty of Science
Chemistry Department
Subject: Organic Chemistry

First Term
2nd year: Biology & Biophysics Student
Date: Jan 2012
Time Allowed: 2 h
Full Marks: 60 Marks
Code: 235

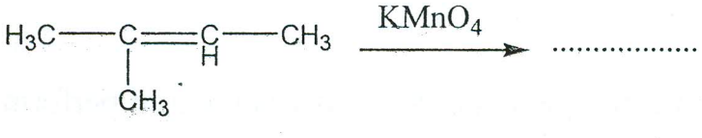
Answer the following questions:

Q1- Complete the following equations: [20 marks]

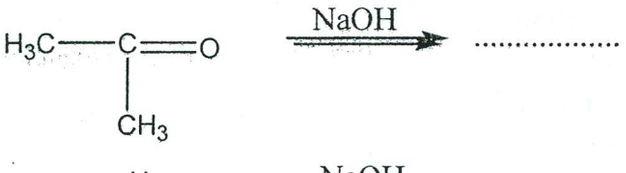
i- $2\ CH_3\text{-}Cl \xrightarrow{Na}$ .....

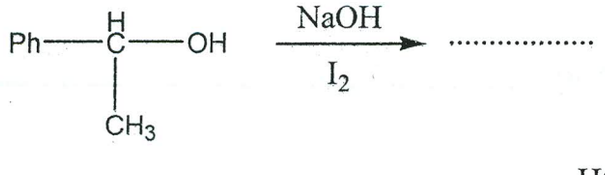
ii-  .....

iii-  .....

iv-  .....

v- $CH_3\text{-}CHO + NH_2\text{-}OH \longrightarrow$ .....

vi-  .....

vii-  .....

viii- $CH_3\text{-}Br + Mg \longrightarrow$ ..... $\xrightarrow{HCHO}$ .....

ix- $HC\equiv CH \xrightarrow[2\text{- }CH_3\text{-}Cl]{1\text{- Na}}$ ..... $\xrightarrow[H^+]{HOH}$ .....

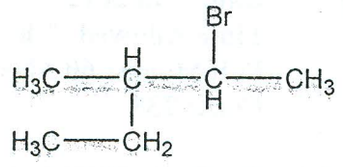
x- $Ph\text{-}CHO + HCN \longrightarrow$ .....

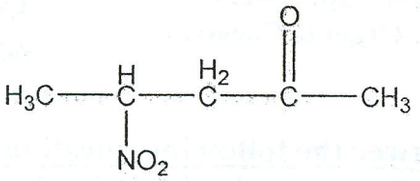
Q2- Illustrate the following: [20 marks]

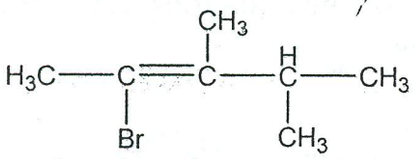
a) Draw the chemical structure of the following compounds:
i- 3-methyl-1-butanol.
ii- neohexylchloride.
iii- 2-buten-1-ol.

P.T.O ⟶

b) Write the IUPAC name of the following:

i- 

ii- 

iii- 

c) Draw all isomers and assign the type of isomerism in each of the following compounds:

i- 1,2-dichloroethylene.
ii- $C_4H_{10}O$.
iii- 2,3-dibromo-1-butanol.

Q3- Using the chemical equations, show how you could perform the following conversions. [20 marks]

i- Ethylene to acetone.
ii- Methyl chloride to ethanol.
iii- 1-propanol to 2-propanol.
iv- Ethanol to crotonaldehyde.
v- Acetylene to acetone.

With our best Wishes

Examiners:

Prof. A.A. Fadda, Dr. M. Monier, Dr. D.M. Ayad and Dr. M. Elsayed

المستوى الثاني - جيولوجيا + مجموعة البيولوجي . كيمياء العناصر الممثلة (لاعد)

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s):Inorganic Chemistry, Chem 221		First Term 2[rd] Level (Geology, Microbiology, Botany, Environmental, Zoology/ Chem) Date : Jan. 2012 Time Allowed: 2 hours 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. **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 poluttants.**
8. **The great reactivity of F_2.**
9. **Photochromic eye glass is made by adding a small amount of AgCl.**
10. **H_3PO_2 is a strong reducing agent.**
11. **Aqueous solutions of Be(II) salts are acidic.**
12. **Cs^+ conducts electricity more than Li^+ in aqueous solution.**
13. **Malathion has a great effect on insects rather than human.**

P.T.O

2. Complete <u>10 only</u> of the following equations: <u>(30 mark)</u>

1. $CH_4 + H_2O_{(g)} \rightarrow$
2. $2NaCl$ (electrolysis /$CaCl_2$)$\rightarrow$
2. $CoO + B_2O_3 \rightarrow$
3. $Na_2O_2 + CO_2 \rightarrow$
4. $HF + SiO_2 \rightarrow$
5. $CaCN_2 + 5H_2O \rightarrow$
6. $CuO + NaH \rightarrow$
7. $2KClO_3 + MnO_2$ + heat $\rightarrow$
8. $CaF_2 + H_2SO_{4\ Conc.} -$ ....
9. $NaCl_{(aq)} + CO_{2(g)} + NH_{3(g)} \rightarrow$ .....
10. $H_3BO_3 + H_2O \rightarrow$
11. $B_2O_3 + P_2O_5 \rightarrow$

3. Try on <u>(4 only)</u> of the following: <u>(20 Mark)</u>

a. Contact process for production of H_2SO_4

b. Structure of B_2H_6.

c. Ostwald process for the production of HNO_3.

d. Allotropy of Carbon

e. Ortho- and para hydrogen.

f. Isolation of silicon in pure form

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 snd umbel inflorescence. (5 marks)
4) Dicots and monocots. (5 marks)

Examiners: Prof. Ibrahim Mashaly, Prof. Mohamed Abo-Ziada, Prof. Sayed El-Halawany, Dr. Ehsan El-Habashy

المستوى الثانى - مقدمة فى الفيزياء الحيوية (فع ٢١١)

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

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

2nd Level students
برامج (فيزياء حيوية- ميكروبيولوجى- كيمياء حيوان-كيمياء -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: Depolarization – Activity of a radioactive source - Hematocrit- Heat Flux	6
	c-	If you have 4 gram of pure ^{40}K emits $2x10^5$ β- particles/sec. Calculate the decay constant λ and half life time $t_{1/2}$? (Avogadro's number $=6.02x10^{23}$).	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 α - particles, β- particles and γ-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 $\varepsilon_o = 8.85\times10^{-12}$ s/ohm-m. ii. Calculate the number of elementary charges per m^2 if the charge is $1.6x10^{-19}$C and the potential difference =70mV.	7

Best wishes:

Examiners: * د. هانى كمال د.محمد منصور د. نبيل قناوى