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

الفصـــــل الدراسى: الأول
تاريـــخ الإمـــتحان: ١٣ يناير ٢٠١١
الزمـــــــــن: ساعتان
الدرجـــة الكليـــة :٦٠ درجـــة
كود المادة: Z(204)

Answer the three following questions

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

1)- Tail fin of dog fish is ------1-----and of bolti is-----2-------- .
2)-Bony fishes have 4 pairs of -------3------with an ------4-------.
3)-The stomach of aves consists of 2parts --------5-----and-------6------.
4)-The fertilization in *petromyzon* is ------7----while in dog fish is ----8----, because -----9-----and the male has-----10-------between the pelvic fins .
5)-The rectal gland function is ----------11---------- .
6)-Class amphibia classified into three orders----12-----,------13------and------14-----.
7)- Amphioxus is an ideal chordate animal ,but lack-----15---and-----16----.
8)-The endostyle contains columns of ----17-----cells alternate with ----18---cells .
9)-Bony fishes skin covered by ------19-----scales while in cartilaginous fishes skin covered by----------20----------scales.

Question two : (20 marks ,10 for each part)

A)-Defined the following terms, and give an example if present : (<u>answer five only</u>) 1)-Notochord . 2)-Amniotes . 3)-Midgut diverticulum 4)Anadromous animals . 5)-Swim bladder . 6)Retrogressive metamorphosis.

B)-Choose the correct answer :

1)-Branchial basket support the respiratory tube of ----------.
a)-*Amphioxus* b)-*Petromyzon* c)-dog fish
2)-In aves some organs are reduced such as ---------- .
a)-right kidney b)-right testis c)-urinary bladder
3)-Pisces (fishes) and tetrapods are ---------- .
a)-Amniotes b)-gnathastoms c)-cold blooded animals

4)The only hermaphrodite animal in chordates is ---------- .
a)-dogfish b)-*ascidia* c)-*petromyzon*
5)-Aves has 9 air sacs at which ---------- .
a)-Gas exchange take place b)-air stored
6)-The subneural gland in *ascidia* resemble the ----------gland .
a)-Thyroid b)-pituitary c)-rectal
7)-In aves there is no skin glands except the ----------gland on the tail
a)mammary b)-oil c)-rectal
8)-In cephalochordates the notochord ---------- .
a)-remains in adult stage b)- disappear in adult stage c)-replaced by vertebral column .
9)-In chordates the anus lies at the ---------- .
a)-end of the body b)- end of the trunk
10)-Excretion in Amphioxus occurs by ---------- .
a)mesonephros kidney b)-nephridia c)-metanephoros kidney

Question three :(20 marks, 10 for each part)

A)-Draw with complete lablling:

1)-Digestive system of *Amphioxus* **or** digestive system of dogfish.
2)- *Ascidia.*

B)-Write the general characters of two of the followings:

1)-Amphibians.
2)-Mammals .
3)-Reptilians

----------With best wishes----------

Dr.Fawkia el-sayyad . Dr.Yosra fouda.

University of Mansoura Faculty of Science Physics Department		First Term Sophomore Students Date: January 2011 Allowed time: 2 hours المنصورة- مصر
Exam: Introduction to Biophysics	Code: 211ف	Full Mark: 80 Mark

Answer all the following question:

[1] a- Discuss the electrical properties of a neuron? [10 Marks]

b- Calculate the pressure variation corresponding to a sound intensity of 10^{-16} W/cm^2. The density of air at 0°C and 1 atm pressure is 1.29 x 10^{-3}g/cm^3. The speed of sound is 3.3 x 10^4 cm/sec ($I = 10^{-16}$ W/cm^2 = 10^{-9} erg/s.cm^2)? [5 Marks]

C- Discuss in detail different radiation biological effects on mammalians? [10 Marks]

[2] a- Estimate numerically the speed of propagation of nerve impulse propagation across an myelinated and unmyelinated axon? [7 Marks]

b- Calculate the photon flux at 1 m and 2 m from a ^{60}Co gamma source of activity 800 MBq? [8 Marks]

c- Define the followings: **(Answer five items only)** [10 Marks]

i) Friction force ii) Sivert iii) Ionization chamber iv) Intensity of sound wave

iiv) Decibl v) Non-stochastic Effect

[3] a- What is the total flow resistance of a three parallel arteries in the calf which have radius 1 mm and length 200 mm? b) If the volume flow velocity of blood though these arteries is 1.7 x 10^{-6} m^3/S. What is the pressure drop across the arteries?

(Consider the viscosity of blood = 3.5 x 10^{-3} N.S/m^2) [10 Marks]

b- Compare between each two items of the followings: **(Answer four items only)**

[20 Mark]

(i) Resonance in basilar fiber for high frequency and low frequency.

(ii) Compton effect and photoelectric effect.

(iii) Resting membrane potential and action membrane potential.

(iv) Blood pressure in systematic and pulmonary systems.

(iiv) α-particles and β -particles properties.

Best Wishes

Examiners: Dr. Hosam Salah-Eldin Dr. Mohamed Saad-Eldin

Prof. Dr. Maher El-Tonsi Prof.Dr. Alaa Eldin El-koudry

معتمد السيد العفيفي

Mansoura University
Faculty of Science
Botany Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany First Term: Jan. 2011

Educational Year: 2nd Level | Program (Branch): Biology

Subject: (ن ٢٠١) | Course(s): Introduction to Plant Ecology & Taxonomy

Time: 2 hrs | Date: 16/01 /2011 | Full mark: 60 | Question mark: 20

Answer the following questions:

Q.1 A) - Complete the following sentences with correct terms (10 Marks)

1. The unavailable soil water includes……;……and……
2. Halophytes are plants growing in……, while……grows in dry habitats.
3. Colluvial soil parent materials are transported by……, while alluvial parent materials are transported by……
4. The main basic processes responsible for soil development include……;…… and……

Q.1. B): True /False (10 Marks)

1. Crustose lichens are the first stage in xerosere succession:
   ○ True ○ False
2. Secondary succession starts on extreme bare areas:
   ○ True ○ False
3. Soil physical drought means that water is present in excess amount but it is not available for plants:
   ◉ True ◉ False
4. Clay particles are distinguished into coarse clay and colloidal clay:
   ○ True ○ False
5. Clay soils have bad aeration & bad drainage properties:
   ○ True ○ False
6. Sandy soils have large particle size and lowest pore space:
   ○ True ○ False
7. Plant migration is considered successful when its pioneers gives new Individuals:
   ○ True ○ False
8. Sand Loess are fertile clay accumulations:
   ○ True ○ False

ملحوظة: بقية الاسئلة خلف الورقة

9. Climax stage in vegetation development is determined by soil factors:

○ True ○ False

10. Gravitational water is the soil water which is very important for plant life:

○ True ○ False

Q- 2. A) - Illustrate with full drawings Two Only of the following: (10 Marks)

a) - Soil profile b)- Stages of vegetation evolution; c)- Hydrosere succession

Q. 2 B)

1. Explain Theophrastus System in plant taxonomy (5 Marks)
2. Write on wind pollination (5 Marks)

Q. 3 A) - Complete the following sentences with correct term (10 Marks)

1. The essential parts of a flower are: ……and ……
2. Family Cruciferae belongs to order……
3. Floral characters of monocots are……;……and……
4. Inflorescences in Compositae are: ……
5. Flower arising from the axial of a leaf is known as: ……
6. Endocarp in drupe fruit is……
7. …… is the arrangement of ovules on the inner wall of the ovary.

Q. 3 B) - True /False (10 Marks)

1. The flower is described as epigenous when its ovary is inferior.
2. In family Palmae: the flowers are unisexual.
3. Aestivation is the arrangement of sepals and petals in relation to each other.
4. In family Solanaceae, the ovary is formed of two united carples obliquely placed.
5. Petals are cross form in family leguminosae
6. The fruit is legume in family Malvaceae
7. In family Convolvulaceae, the anthers adhere together by their edges around the style.
8. True fruit is formed of other parts than ovary
9. In family liliaceae, the perianth is scaly.
10. The side of the flower adjacent to the bract is called posterior side.

With Best Wishes

Examiners: Prof. M.A. El Demerdash Prof. I. A. Mashaly
Prof. S. F.El Halawany Dr. Ehsam E.El Habashy

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): Inorganic Chemistry, Chem 221		First Term 2rd Level (Geology, Microbiology, Botany, Environmental, Zoology/ Chem) Date : Jan. 2011 Time Allowed: 2 hours Full Mark: 80 Marks

Answer the Following Questions

1- Comment on (10 only) of the following: (Each 3 mark = 30 Mark)

1. **Oxy-hydrogen torch is used in cutting and welding metals.**
2. **White phosphorous should never be allowed to come in contact with the skin.**
3. **Li shows considerable differences from the rest of group II.**
4. **Group II elements are heavily hydrated than group I elements.**
5. **Calcium dihydrogen phosphate is used in food industry.**
6. **HF is a weak acid.**
7. **The great reactivity of F_2.**
8. **Photochromic eye glass is made by adding a small amount of AgCl.**
9. **Thallous (+1) compounds are stable.**
10. **Aqueous solutions of Be(II) salts are acidic.**
11. **Addition of glycerol makes $B(OH)_3$ a strong monobasic acid.**
12. **Malathion has a great effect on insects rather than human.**

2- Complete 10 only of the following equations: (Each 3 mark = 30 Mark)

1. $C_{(coke)} + H_2O_{(g)} \xrightarrow[1000^{\circ}C]{Fe} \rightarrow$

P.T.O

2. $CoO + B_2O_3 \rightarrow$

3. $HF + SiO_2 \rightarrow$

4. $Na_2O_2 + H_2O \rightarrow$

5. $SiF_4 + H_2O \rightarrow$

6. $4\,Ag_{(s)} + 2H_2S_{(g)} + O_{2(g)} \rightarrow$

7. $CaCN_2 + 5H_2O \rightarrow$

8. $CuO + NaH \rightarrow$

9. $2KClO_3 \xrightarrow[400^{\circ}c]{\Delta} \rightarrow$

10. $CaBr_2 + H_2SO_{4\ Conc.} \rightarrow \ldots\ldots\ldots \xrightarrow[H2SO4]{Conc.} \rightarrow \ldots\ldots\ldots$

11. $P_4O_{10} + 6H_2SO_{4\ Conc.} \rightarrow$

12. $H_2SO_4 + SO_3 \rightarrow \ldots\ldots\ldots\ldots\ldots\ldots$

3- Try on (4 only) of the following! (Each 5 mark = 20 Mark)

a. Solvay process for the production of sodium carbonate

b. Structure of B_2H_6.

c. Ostwald process for the production of HNO_3.

d. Explain why diamond is an extremely hard substance and graphite is soft (silppery).

e. Ortho and para hydrogen.

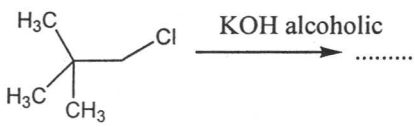
f. Frasch process for extration of sulfur.

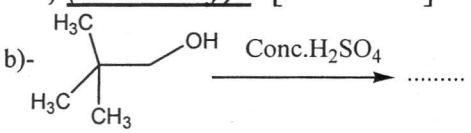
Mansoura University
Faculty of Science
Chemistry Department
Subject: Chemistry
Course: Organic
Code: 235

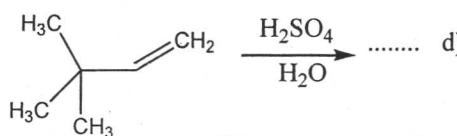
First term
second level students
date: Jan. 20/1/2011
Time allowed: 2 hours
Full mark:60 marks

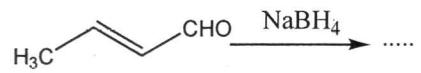
Answer the following <u>Three</u> questions:

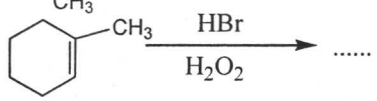
1-Complete the following equations; ***(Five only):*** [20 marks]

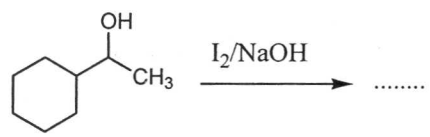
a)- 

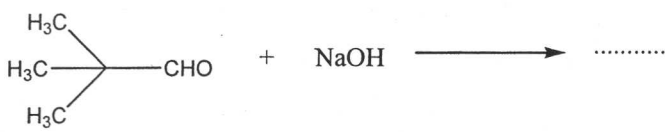
b)- 

c)- 

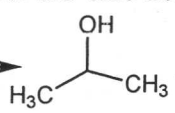
d)- 

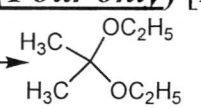
e)- 

f)- 

g)- 

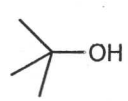
2-Show how can you do the following conversions: ***(Four only)*** [20 marks]

a)- Propane 

b)- Methylacetylene 

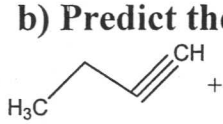
c) 1-Butene ⟶ 2-Butene

d)- Acetaldehyde ⟶ Acetylene

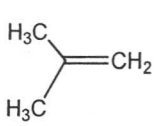
e)- Acetone ⟶ 

3- a) Fructose and glucose gave the same ozazone, Comment. (4 marks)

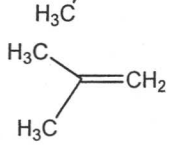
b) Predict the products of the following reactions: ***(Four only)*** (16 marks)

a) 

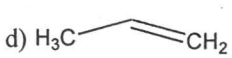
+ $NaNH_2$ ⟶ ..... CH_3Cl ⟶ .....

b) 

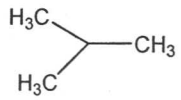
+ O_3 ⟶ .....

c) 

+ ICl ⟶ .....

d) 

+ Cl_2/H_2O ⟶ .....

e) 

+ Cl_2 ⟶ .....

<u>Best wishes</u>

Mansoura University
Faculty of Science
Zoology Department

First Term Exam, Jan. 2011

Education year: Second level | Program: Biology
Time: 2 hours | Subject: Zoology
Date: 11/ 1/ 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: (15) Marks

1- Gastrulation of Amphioxus has been taken firstly by flattening of the blastula cells at the ..... pole.
a- vegetal b- animal c- grey cresent

2- At the end of gastrula of Amphioxus, a new cavity called ..... is formed
a- blastocoel b- archentron c- blastopore

3- The fifth cleavage of Amphioxus is carried out by ..... horizontal plane.
a- one b- two c- four

4- In Human, the fertilization must be done within ..... day after ovulation.
a- one b- two c- three

5- Human embryo undergoes the cleavage while it is surrounding by .....
a- theca interna b- theca externa c- zona pellucida

6- The Mammalian cleavage is different from most other patterns of embryonic cell division, it is ..... holoblastic cleavage.
a- unequal b- equall c- not A or B

8- The human embryo undergoes a process called ..... causes the cleaved blastomeres more tightly.
a- compaction b- capacitation c- fertilization

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- One of the following implantation sit does not represent ectopic pregnancy, it is .....
a- Tubal b- Uterine c- Ovarian

11- Each cell of 8- cell stage of human embryo able to be.....
a- totipotent b- pluripotent c- multipotent

12- The fertilization of birds possesses a phenomenon called .....
a- aspermia b- dispermia c- polyspermia

13- Dolly sheep, accelerating aging and died due to ..... of telomeres.
a- shortening b- longing c- loosening

14- The appearance of ..... on toad eggs indicates of their fertilization.
a- dark animal hemisphere b- gray crescent c- both of them

15- There are ..... main types of mammalian stem cells.
a- one b- two c- three

b- Discus the differences between toad blastula and human blastocyst, adding labeled diagram. (5) marks

Q2 A- Compare between both of the following: (10) marks

1- Pluripotent and multipotent stem cells.
2- Chorion and yolk sac.

Question 2B- Discuss briefly of the followings: (10) marks

1. Steps of fertilization.
2. Embryo axis.

Question 3- Answer the following items: (20) marks

1- Name of germ layer involved in the formation of skin, muscle, heart, nervous system, primordial germ cells and bone, liver, skull.
2- Cytoplasmic organelles involved in the formation of acrosome and tails of sperm.
3- Define the types of body cells; spermatid, bone cell, cardiomyocyte, myoblast , neurons, Graafian follicle and oogonia.
4- Define the following terms: Neurulation , parthenogenesis, conjoined twins, gastrulation.
5- Mention the name of reproductive cycles showing the following structures: corpus luteum, Graafian follicle, spiral artery, endometrial glands.
6- Refer the following terms to the stages of gametogenesis: spermatid, polar body, 2ry oocyte, spermatogonia and oogonia.
7- Kinds of sperm abnormalities.
8- Kinds & function of egg membranes for egg of birds.
9- Enzymes secreted by acrosome and its function.
10- Kinds of egg and cleavage of the followings: toad, amphioxus, mammals, chick.

With our best wishes ..... Prof.Dr. Hassan El-Sayyad

Assoc. Prof. Dr. Manal Ramadan

المستوى الثاني.(مجموعة البيولوجي) - مقدمة في الأيض العام للنبات (س.ب)

Mansoura universty	جامعة المنصوره
Faculty of science	كلية العلوم
Botany Department	قسم النبات
El-Mansoura, Egypt	المنصوره-مصر

Final examination in Botany

First Term: Jan. 2011

Educational Year: Second Level **Program :Biology.........**

Subject: Biology(202) **Course(s) :Introduction to Plant metabolism**

Time: 2hrs **Date: /1/2011**

Full mark: 60 **Question mark: 20**

Answer the following Questions:

Q1:

A- What is Z-scheme of light reactions and what are the products of photoreactions of photosynthesis. (10)

B- Show the enzymatic reactions for formation of NH_3 from nitrate, urea and molecular nitrogen and where it happen in the plant. (10)

Q2:

A- Mention giving two examples for each of the various types of carbohydrates (saccharides). (10)

B- Mention the different types of lipids and show the mechanism of fatty acid synthesis and where it happens. (10)

Q3:

A- Outline the enzymatic pathway of pyruvic acid in aerobic respiration showing the energy produced as ATP and organic acids formed in Kreb's cycle used in reductive amination for amino acids synthesis. (10)

B- Show with equations only mentioning enzymes involved:

1- Synthesis of glutamine from α-ketoglutaric acid. (2)

2- Synthesis of sucrose. (2)

3- Transamination reaction. (2)

4- Dark reactions of C_3&C4 plants. (2)

5- Fermentation of pyruvic acid. (2)

Examiners: Prof. M.A.Abbas, Prof. O. El-Shahaby, Prof. H. El-Shora, Prof. A. Gaber

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

الفصـــــل الدراسى: الأول
تاريـــخ الإمـــتحان: ١٣ يناير ٢٠١١
الزمـــــــــن: ساعتان
الدرجـــة الكليـــة :٦٠ درجـــة
كود المادة: Z(204)

Answer the three following questions

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

1)- Tail fin of dog fish is ------1-----and of bolti is-----2-------- .
2)-Bony fishes have 4 pairs of -------3------with an ------4-------.
3)-The stomach of aves consists of 2parts --------5-----and-------6------.
4)-The fertilization in *petromyzon* is ------7----while in dog fish is ----8----, because -----9-----and the male has-----10-------between the pelvic fins .
5)-The rectal gland function is ----------11---------- .
6)-Class amphibia classified into three orders----12-----,------13------and------14-----.
7)- Amphioxus is an ideal chordate animal ,but lack-----15---and-----16----.
8)-The endostyle contains columns of ----17-----cells alternate with ----18---cells .
9)-Bony fishes skin covered by ------19-----scales while in cartilaginous fishes skin covered by----------20----------scales.

Question two : (20 marks ,10 for each part)

A)-Defined the following terms, and give an example if present : (<u>answer five only</u>) 1)-Notochord . 2)-Amniotes . 3)-Midgut diverticulum 4)Anadromous animals . 5)-Swim bladder . 6)Retrogressive metamorphosis.

B)-Choose the correct answer :

1)-Branchial basket support the respiratory tube of ----------.
a)-*Amphioxus* b)-*Petromyzon* c)-dog fish
2)-In aves some organs are reduced such as ---------- .
a)-right kidney b)-right testis c)-urinary bladder
3)-Pisces (fishes) and tetrapods are ---------- .
a)-Amniotes b)-gnathastoms c)-cold blooded animals

4)The only hermaphrodite animal in chordates is ---------- .
a)-dogfish b)-*ascidia* c)-*petromyzon*
5)-Aves has 9 air sacs at which ---------- .
a)-Gas exchange take place b)-air stored
6)-The subneural gland in *ascidia* resemble the ----------gland .
a)-Thyroid b)-pituitary c)-rectal
7)-In aves there is no skin glands except the ----------gland on the tail
a)mammary b)-oil c)-rectal
8)-In cephalochordates the notochord ---------- .
a)-remains in adult stage b)- disappear in adult stage c)-replaced by vertebral column .
9)-In chordates the anus lies at the ---------- .
a)-end of the body b)- end of the trunk
10)-Excretion in Amphioxus occurs by ---------- .
a)mesonephros kidney b)-nephridia c)-metanephoros kidney

Question three :(20 marks, 10 for each part)

A)-Draw with complete lablling:

1)-Digestive system of *Amphioxus* **or** digestive system of dogfish.
2)- *Ascidia.*

B)-Write the general characters of two of the followings:

1)-Amphibians.
2)-Mammals .
3)-Reptilians

----------With best wishes----------

Dr.Fawkia el-sayyad . Dr.Yosra fouda.

المستوى الثانى - مجموعة بيولوجى - مقدمة البيئة والتصنيف (ن ٢٠١)

Mansoura University Faculty of Science Botany Department El-Mansoura, Egypt		جامعة المنصورة كلية العلوم قسم النبات المنصورة - مصر

Final Examination in Botany First Term: Jan. 2011

Educational Year: 2nd Level | **Program (Branch): Biology**

Subject: (ن ٢٠١) | **Course(s): Introduction to Plant Ecology & Taxonomy**

Time: 2 hrs Date: 16/01 /2011 | **Full mark: 60** | **Question mark: 20**

Answer the following questions:

Q.1 A) - Complete the following sentences with correct terms (10 Marks)

1. The unavailable soil water includes…………;…………and…………
2. Halophytes are plants growing in…………, while…………grows in dry habitats.
3. Colluvial soil parent materials are transported by…………, while alluvial parent materials are transported by…………
4. The main basic processes responsible for soil development include…………;………… and…………

Q.1. B): True /False (10 Marks)

1. Crustose lichens are the first stage in xerosere succession:
   ◌ True ◌ False
2. Secondary succession starts on extreme bare areas:
   ◌ True ◌ False
3. Soil physical drought means that water is present in excess amount but it is not available for plants:
   ◌ True ◌ False
4. Clay particles are distinguished into coarse clay and colloidal clay:
   ◌ True ◌ False
5. Clay soils have bad aeration & bad drainage properties:
   ◌ True ◌ False
6. Sandy soils have large particle size and lowest pore space:
   ◌ True ◌ False
7. Plant migration is considered successful when its pioneers gives new Individuals:
   ◌ True ◌ False
8. Sand Loess are fertile clay accumulations:
   ◌ True ◌ False

ملحوظة: بقية الاسئلة خلف الورقة

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): Inorganic Chemistry, Chem 221		First Term 2rd Level (Geology, Microbiology, Botany, Environmental, Zoology/ Chem) Date : Jan. 2011 Time Allowed: 2 hours Full Mark: 80 Marks

Answer the Following Questions

1- Comment on (10 only) of the following: (Each 3 mark = 30 Mark)

1. **Oxy-hydrogen torch is used in cutting and welding metals.**
2. **White phosphorous should never be allowed to come in contact with the skin.**
3. **Li shows considerable differences from the rest of group II.**
4. **Group II elements are heavily hydrated than group I elements.**
5. **Calcium dihydrogen phosphate is used in food industry.**
6. **HF is a weak acid.**
7. **The great reactivity of F_2.**
8. **Photochromic eye glass is made by adding a small amount of AgCl.**
9. **Thallous (+1) compounds are stable.**
10. **Aqueous solutions of Be(II) salts are acidic.**
11. **Addition of glycerol makes $B(OH)_3$ a strong monobasic acid.**
12. **Malathion has a great effect on insects rather than human.**

2- Complete 10 only of the following equations: (Each 3 mark = 30 Mark)

1. $C_{(coke)} + H_2O_{(g)} \xrightarrow[1000^{\circ}C]{Fe} \rightarrow$

P.T.O

2. $CoO + B_2O_3 \rightarrow$

3. $HF + SiO_2 \rightarrow$

4. $Na_2O_2 + H_2O \rightarrow$

5. $SiF_4 + H_2O \rightarrow$

6. $4\,Ag_{(s)} + 2H_2S_{(g)} + O_{2(g)} \rightarrow$

7. $CaCN_2 + 5H_2O \rightarrow$

8. $CuO + NaH \rightarrow$

9. $2KClO_3 \xrightarrow[400^{\circ}c]{\Delta} \rightarrow$

10. $CaBr_2 + H_2SO_{4\ Conc.} \rightarrow \ldots\ldots\ldots \xrightarrow[H2SO4]{Conc.} \rightarrow \ldots\ldots\ldots$

11. $P_4O_{10} + 6H_2SO_{4\ Conc.} \rightarrow$

12. $H_2SO_4 + SO_3 \rightarrow \ldots\ldots\ldots\ldots\ldots\ldots$

3- Try on (4 only) of the following! (Each 5 mark = 20 Mark)

a. Solvay process for the production of sodium carbonate

b. Structure of B_2H_6.

c. Ostwald process for the production of HNO_3.

d. Explain why diamond is an extremely hard substance and graphite is soft (silppery).

e. Ortho and para hydrogen.

f. Frasch process for extration of sulfur.

المستوى الثاني - برامج (الفيزياء الجوية - الجيولوجيا - جيولوجيا وجيوفيزياء) له ٢٠ - امتحان الكيمياء العضوية (١)

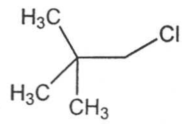
Mansoura University
Faculty of Science
Chemistry Department

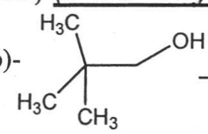
Subject: Chemistry
Course: Organic
Code: 235

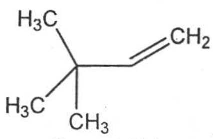
First term
second level students
date: Jan. 20/1/2011
Time allowed: 2 hours
Full mark:60 marks

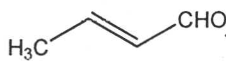
Answer the following Three questions:

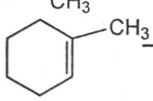
1-Complete the following equations; *(Five only):* [20 marks]

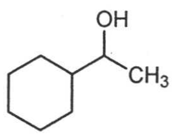
a)-  KOH alcoholic → ....

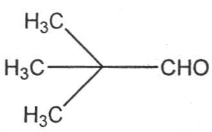
b)-  Conc.H_2SO_4 → ....

c)-  H_2SO_4 / H_2O → ....

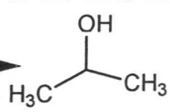
d)-  $NaBH_4$ → .....

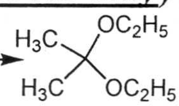
e)-  HBr / H_2O_2 → ......

f)-  I_2/NaOH → ....

g)-  + NaOH → ....

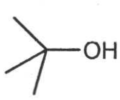
2-Show how can you do the following conversions: *(Four only)* [20 marks]

a)- Propane → 

b)- Methylacetylene → 

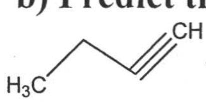
c) 1-Butene → 2-Butene

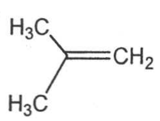
d)- Acetaldehyde → Acetylene

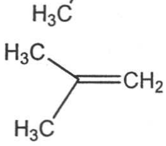
e)- Acetone → 

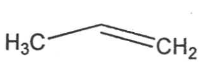
3- a) Fructose and glucose gave the same ozazone, Comment. (4 marks)

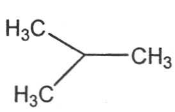
b) Predict the products of the following reactions: *(Four only)* (16 marks)

a)  + $NaNH_2$ → .... CH_3Cl → ....

b)  + O_3 → ......

c)  + ICl → ....

d)  + Cl_2/H_2O → ....

e)  + Cl_2 → ....

Best wishes

University of Mansoura **Faculty of Science** **Physics Department**		**First Term** **Sophomore Students** **Date: January 2011** **Allowed time: 2 hours** المنصورة- مصر
Exam: Introduction to Biophysics	**Code: 211ف ح**	**Full Mark: 80 Mark**

Answer all the following question:

[1] a- Discuss the electrical properties of a neuron? [10 Marks]

b- Calculate the pressure variation corresponding to a sound intensity of 10^{-16} W/cm^2. The density of air at 0°C and 1 atm pressure is 1.29 x 10^{-3}g/cm^3. The speed of sound is 3.3 x 10^4 cm/sec ($I = 10^{-16}$ W/cm^2 = 10^{-9} erg/s.cm^2)? [5 Marks]

C- Discuss in detail different radiation biological effects on mammalians? [10 Marks]

[2] a- Estimate numerically the speed of propagation of nerve impulse propagation across an myelinated and unmyelinated axon? [7 Marks]

b- Calculate the photon flux at 1 m and 2 m from a ^{60}Co gamma source of activity 800 MBq? [8 Marks]

c- Define the followings: **(Answer five items only)** [10 Marks]

i) Friction force ii) Sivert iii) Ionization chamber iv) Intensity of sound wave

iiv) Decibl v) Non-stochastic Effect

[3] a- What is the total flow resistance of a three parallel arteries in the calf which have radius 1 mm and length 200 mm? b) If the volume flow velocity of blood though these arteries is 1.7 x 10^{-6} m^3/S. What is the pressure drop across the arteries?
(Consider the viscosity of blood = 3.5 x 10^{-3} N.S/m^2) [10 Marks]

b- Compare between each two items of the followings: **(Answer four items only)**

[20 Mark]

(i) Resonance in basilar fiber for high frequency and low frequency.

(ii) Compton effect and photoelectric effect.

(iii) Resting membrane potential and action membrane potential.

(iv) Blood pressure in systematic and pulmonary systems.

(iiv) α-particles and β -particles properties.

Best Wishes

Examiners: Dr. Hosam Salah-Eldin Dr. Mohamed Saad-Eldin

Prof. Dr. Maher El-Tonsi Prof.Dr. Alaa Eldin El-koudry

Mansoura University
Faculty of science
Physics Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم الفيزياء
المنصورة- مصر

First Term Examination Jan. 2011

Subject: Physics
Time: 2 hours
Date: 9 / 1 / 2011

Course(S): ف ٢٢١ Physical Optics
Full Mark: 80 Marks

Answer the following questions:

1-a) Discuss Fraunhofer diffraction using a rectangular slit. Drive an expression for the intensity distribution of the observed diffraction pattern. (15 Marks)

b) A grating with 8000 rulings/inch is illuminated with white light at normal incidence. Describe the diffraction pattern at the center and the first order assuming that the wavelength of the light extends from 4000A° to 7000A°. (12 Marks)

.....

2-a) Give a brief account with an explanatory of the optical arrangement of Newton s rings interferometer. Derive the necessary formula of these rings. Discuss that the forming of dark spot in the center of the rings at reflection confirm the principal of change of phase at reflection. (15Marks)

b) A thin sheet of transparent material have refractive index ($\mu = 1.6$) is placed in the path of one of the interfering beams in a biprism experiment using sodium light of wavelength ($\lambda = 5890$ A°). The central fringe shifts to a position normally occupied by the 12^{th} bright fringe. Calculate the thickness of the sheet. (12Marks)

.....

3-a) Give account with an explanatory diagram of the optical arrangement of the polarimeter. Explain the method of measuring the strength of a solution have optical activity with that polarimeter. (15Marks)

b) In a Mach – Zehnder, when one of the beams passes through a wide tunnel of length 10 meters, 120 fringes cross the center of the field of view. Calculate the change in refractive index if the wavelength of the light used is equal 5890 A°. (11Marks)

Good Luck Prof. Dr. Taha Sokkar, Dr. Mohamed Kabeel & Dr. Eman Sesa

Mansoura University
Faculty of Science
Zoology Department

First Term Exam, Jan. 2011

Education year: Second level | Program: Biology
Time: 2 hours | Subject: Zoology
Date: 11/ 1/ 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: (15) Marks

1- Gastrulation of Amphioxus has been taken firstly by flattening of the blastula cells at the ..... pole.
a- vegetal b- animal c- grey cresent

2- At the end of gastrula of Amphioxus, a new cavity called ..... is formed
a- blastocoel b- archentron c- blastopore

3- The fifth cleavage of Amphioxus is carried out by ..... horizontal plane.
a- one b- two c- four

4- In Human, the fertilization must be done within ..... day after ovulation.
a- one b- two c- three

5- Human embryo undergoes the cleavage while it is surrounding by .....
a- theca interna b- theca externa c- zona pellucida

6- The Mammalian cleavage is different from most other patterns of embryonic cell division, it is ..... holoblastic cleavage.
a- unequal b- equall c- not A or B

8- The human embryo undergoes a process called ..... causes the cleaved blastomeres more tightly.
a- compaction b- capacitation c- fertilization

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- One of the following implantation sit does not represent ectopic pregnancy, it is .....
a- Tubal b- Uterine c- Ovarian

11- Each cell of 8- cell stage of human embryo able to be.....
a- totipotent b- pluripotent c- multipotent

12- The fertilization of birds possesses a phenomenon called .....
a- aspermia b- dispermia c- polyspermia

13- Dolly sheep, accelerating aging and died due to ..... of telomeres.
a- shortening b- longing c- loosening

14- The appearance of ..... on toad eggs indicates of their fertilization.
a- dark animal hemisphere b- gray crescent c- both of them

15- There are ..... main types of mammalian stem cells.
a- one b- two c- three

b- Discus the differences between toad blastula and human blastocyst, adding labeled diagram. (5) marks

Q2 A- Compare between both of the following: (10) marks

1- Pluripotent and multipotent stem cells.
2- Chorion and yolk sac.

Question 2B- Discuss briefly of the followings: (10) marks

1. Steps of fertilization.
2. Embryo axis.

Question 3- Answer the following items: (20) marks

1- Name of germ layer involved in the formation of skin, muscle, heart, nervous system, primordial germ cells and bone, liver, skull.
2- Cytoplasmic organelles involved in the formation of acrosome and tails of sperm.
3- Define the types of body cells; spermatid, bone cell, cardiomyocyte, myoblast , neurons, Graafian follicle and oogonia.
4- Define the following terms: Neurulation , parthenogenesis, conjoined twins, gastrulation.
5- Mention the name of reproductive cycles showing the following structures: corpus luteum, Graafian follicle, spiral artery, endometrial glands.
6- Refer the following terms to the stages of gametogenesis: spermatid, polar body, 2ry oocyte, spermatogonia and oogonia.
7- Kinds of sperm abnormalities.
8- Kinds & function of egg membranes for egg of birds.
9- Enzymes secreted by acrosome and its function.
10- Kinds of egg and cleavage of the followings: toad, amphioxus, mammals, chick.

With our best wishes ..... Prof.Dr. Hassan El-Sayyad

Assoc. Prof. Dr. Manal Ramadan

المستوى الثاني (مجموعة البيولوجي) - مقدمة في الأيض العام للنبات (ب.ت)

Mansoura universty
Faculty of science
Botany Department
El-Mansoura, Egypt

جامعة المنصوره
كلية العلوم
قسم النبات
المنصوره-مصر

Final examination in Botany
First Term: Jan. 2011

Educational Year: Second Level **Program :Biology………**
Subject: Biology(202) **Course(s) :Introduction to Plant metabolism**
Time: 2hrs **Date: /1/2011**
Full mark: 60 **Question mark: 20**

Answer the following Questions:

Q1:

A- What is Z-scheme of light reactions and what are the products of photoreactions of photosynthesis. (10)

B- Show the enzymatic reactions for formation of NH_3 from nitrate, urea and molecular nitrogen and where it happen in the plant. (10)

Q2:

A- Mention giving two examples for each of the various types of carbohydrates (saccharides). (10)

B- Mention the different types of lipids and show the mechanism of fatty acid synthesis and where it happens. (10)

Q3:

A- Outline the enzymatic pathway of pyruvic acid in aerobic respiration showing the energy produced as ATP and organic acids formed in Kreb's cycle used in reductive amination for amino acids synthesis. (10)

B- Show with equations only mentioning enzymes involved:

1- Synthesis of glutamine from α-ketoglutaric acid. (2)

2- Synthesis of sucrose. (2)

3- Transamination reaction. (2)

4- Dark reactions of C_3&C4 plants. (2)

5- Fermentation of pyruvic acid. (2)

Examiners: Prof. M.A.Abbas, Prof. O. El-Shahaby, Prof. H. El-Shora, Prof. A. Gaber