Mansoura University
Faculty of Science
Zoology Department
Date: 14/6/2012
Time: 2 hr

Academic year: 3rd level
Program: Chemistry/Zoology
Course: Z 308
Full Mark: 60 Marks

Answer **all** the following Questions:

I- With labeled diagram answer only **Three** from the following items:

[27 mark]

a. Life cycle of *Plasmodium spp.*

b. Life cycle of *Schistosoma spp.*

c. Life cycle of *Fasciola spp.*

d. Life cycle of *Ascaris spp.*

II- With labeled diagrams discuss **Three** only of the following:

[18 mark]

a. Invective stages of : *Giardia lambelia*, *Ancylostoma dnodenale*, *Entamoeba histolytica*, *Enterobius vermicularis*.

b. Life cycle of *Taenia spp.*

c. Life cycle of *Trypanosoma spp.*

d. Life cycle of *Leishmania spp.*

III- Complete the following sentences: [15 mark]

a. The parasite causes pathogenicity to the host in many ways .... , ... , ...

b. Endoparasites that live ....

c. Definitive host is ....

d. Vector host is ....

e. Morphological stages of haemoflagellates are .... , ... , ... , ...

f. *Leishmania donovani* causes .... While *Balantiadium* coli causes ....

g. In platyhelminthes there is no .... or .... system and the digestive system has no ....

With my best wishes

Prof. Dr. Sayed A. El-Tantawy   Prof. Dr. Enayat Salem

Dr. Shreef Ramadan   Dr. Eman A. El-Shabasy

Mansoura University
Faculty of Science
Zoology Department
Date: 4/6/2012
Time: 2 hrs

Academic year: 3rd level
Program: Chemistry & Zoology
Course: Z303
Full Mark: 60 mark

Answer All the following questions:

I- Write short notes on each of the following

a) The morphological differences between suborder Heterocera and suborder Rhopalocera.

b) Economic importance of: Rice grasshopper, cotton leaf worm, scale insects.

II- Give an account on:

a) General characters of subclass Apterygota.

b) Both suborders Blattaria and Mantodea differ from each other in certain aspects, comment.

III- Briefly illustrate structure & function of:

a) Saliva

b) Alternative excretory organs

c) Spiracles & air sac

d) Compouned eye.

IV-a) Circulation in insects is affected by 2 factors: movements of ………. & contraction of ……………… & ………. . The diaphragms have ………. Which enable them to ……….& ………… in harmony with the movement of …………… during …………. . During inhalation, the ventral body wall ………., both diaphragms ………….. thus allowing more space in ………. & ………. Sinuses for inflow of haemolymph during exhalation the ventral body wall …………. & both diaphragms …………. , thus forcing haemolymph to folw into …………… sinus.

b) Brain in insects innervates the head capsule & main sense organs.
The protocerebrum innervates ………… & …………. , deutocerebrum carries 2 ………. innervating …………. and tritocerebrum carries one pair of nerves called …………, each nerve split into ………… the upper branch is the …………… which innervates ………… , the lower branch is the ………. which innervates ……………

<u>Best wishes</u>

لجنة الممتحنين:

أ.د/ هدى حسيب   د./ هدى سالم

د./ وليد العايدى   د./ زينب شعبان

Mansoura University

Faculty of Science

Zoology Department

Second term- Final exam

May 2102

Third year- Zoo/Chem

Subject: Aquatic Fauna (Zoo305)

Date:16 June 2012

Time Allowed: 2hr

Total mark: 60 degree

Answer all the questions with labeled diagram

Question One: (15 degree)

A- Compare between the different types of songe.

B- Compare between *Apus*, *Artemia* and *Daphnia*.

C- Compare between male and female rotifer.

D- Compare between the different classes of annelid.

E- Compare between Alcyonaria and Zooantharia.

Question Two: (15 degree)

Write briefly on general characters of Annelida, Arthropoda, Mollusca Rotifra and Echinodermata.

Question Three: (15 degree)

Write short notes on the following:

A- Reproduction in marine sponge.

B- General characters of *Sagitta* and *Ascidia*.

C- Most important features of Cnidaria.

Question Four: (15 degree)

1- Mention the names of the larvae of the different phyla you have studied.

2- Write about dimorphism and polymorphism in Cnidaria.

3- Describe reproduction in Anthozoa and Scyphozoa.

With best wishes of success,

Dr. Sherif Ramadan

Mansoura University
Faculty of Science
Chemistry Dept.
3rd Year Gen. Chem.

2d Semester 2012
Chem. 364
Full Mark [80]
Time Allowed 2hr

Final Examination

Answer the Following Questions:

1)(a) Which conditions can increase the rate of chemical reactions?[4]

(b) Explain what do you understand by the terms?
i- activation energy, ii- steady-state approximation and iii- active collisions of molecules. [6]

(c) What are the consequences of Light Absorption? [5]

2) Compare between three ONLY of the following: [15]

(a) Fluorescence and phosphorescence and give only two applications for each.

(b) Half-life time for zero and first order

(c) The value of [B] for parallel and consecutive reactions.

(d) Rate equation for the reactions;

$$A \xrightarrow{k_1} B \quad , \quad A \underset{k_2}{\overset{k_1}{\rightleftharpoons}} B$$

3) Deduce the equations used for calculating the order of reaction using the initial rate and half-life time methods. [10]

4) A first order reaction 30 % of its initial concentration was consumed in 20 minutes. Calculate the half-life time and the rate constant of this reaction. [10]

5) For the photochemical reaction; $A \rightarrow B$, 1×10^{-5} M of B is formed on absorption of 6.60 J at 3600 Å. Calculate the quantum yield. Comment on the result. [15]

6) Given the following data for the reaction, $A + B \rightarrow$ Products,

[A](mol L^{-1})	[B](mol L^{-1})	Rate (mol $L^{-1}s^{-1}$)
1.0×10^{-4}	1.0×10^{-4}	1.23×10^{-6}
1.0×10^{-4}	2.0×10^{-4}	2.46×10^{-6}
2.0×10^{-4}	1.0×10^{-4}	4.92×10^{-6}

Calculate the order and rate constant, of the reaction.[15]

Good Luck Prof. Shawky Hassan, Prof. MOH. Emam Dr. Maani Hamada

MansouraUniversity
Faculty of Science
Chemistry Department
Code: Chem.341
Date : June 2012
Subject :
    Electrochemistry

كلية العلوم
جامعة المنصورة

Second Term
Third Level
Program : Chem/Botany, Chem/Zoology&Biophy.

Time Allowed : 2 hours
Full Mark : 60 Marks

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Answer All Questions   الأسئلة على الوجهين

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First Question :   **(15 Mark)**

 (1) Given the cell : $Pt, H_{2(g)}$ *(1atm) / HCl (a₁) / HCl (a₂) / (1atm) $H_{2(g)}$, Pt*

  (i) Complete : The type of the cell is ....

       because..   (3 Mark)

  (ii) Deduce in detail the cell emf   (7 Mark)

 (2) The following values of the emf of the cell: $Ag|AgBr_{(s)}, KBr, Hg_2Br_2|Hg$

   at various temperatures is given as follows:

$t^{o}C$	20	25	30
E, V	0.06630	0.06839	0.07048

 write the electrode reactions, cell reaction and calculate at $25^{o}C$:

  (i) E   (ii) ΔG   (iii) ΔH   (iv) ΔS   (5 Mark)

Second Question :   **(15 Mark)**

 Write on :

    (i) Liquid junction potential (E_j)

    (ii) Gas electrodes .   (iii) Exchange current (i_o)

    (iv) Metal- insoluble metal oxide electrode

Third Question :   **(15 Mark)**

 Give reason :

  (i) Chemical cells with transference are not suitable for exact thermodynamic calculations.

  (ii) Presence of MnO_2 in Le Clanche' cell.

  (iii) During discharging of lead-acid cell , H_2SO_4 is diluted.

  (iv) Saturated KCl solution is preferred in salt bridge.

  (v) Glass electrode is the most convenient one for measurement of pH.

  (vi) The potential of calomel electrode depends on the activity of chloride ion.

Fourth Question : (15 Mark)

Complete :

(1) For the $H^+/H_{2(g)}$ reaction at Pt electrode the value of the exchange current is…………….. and the process is…………………... while at Hg is…………….. and the process is…………………... while at Hg electrode the value of the exchange current is…………..and the process is……………

(2) In lead-acid cell, …………………is the anode, while……………is the cathode.

(3) In Le Clanche' dry cell,……………….. is the anode and its reaction is……………………………………………………………………. while……………is the cathode and its reaction is……………………….

(4) Concentration overpotential is due to………………………………….

(5) Maxwell distribution law is given by the expression : …………………..

(6) When the electrode is polarized,the overpotential plays two roles:

(i)………………………………………………………………………….

(ii)…………………………………………………………………………..

(7) The overpotential necessary for elecctrolysis of water is……………

(8) Electrical work = --

(9) Equation : -------- = --------------------- represents the bridge between thermodynamics and electrochemistry.

(10) An inert metal immersed in a solution containing two oxidation states of the same metal is called -----------------

(11) The transport number of the anion or cation is -----------------------------

(12) As an example of amalgam electrode concentration cell----------------

(13) As an example of electrolyte concentration cell without transference--------

(14) In Cd-Weston cell……………….is the –ve electrode and ……………….. is the + electrode.

(15) Nernst equation relates ……………………with………………………..

Mansoura University
Faculty of Science
Chemistry Department
Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم الكيمياء
المنصورة – مصر

Second Semester Jun 2012

Educational Year: 3ed Year Chemistry & General.   **Subject:** Chemistry.
Course (s): Natural Products.   **Full Mark:** 60.
Date: 11/06/2012.   **Time:** 2 hrs.
Course Code: CH 335.

Answer the following questions

1 – a) Explain how α-terpineol is biosynthesized from acetyl-Co A.   (10 marks)
    b) Write the chemical structure of the following compounds and their classification   (5 marks)

1- α-ionone   6- Ephedrine

2- Limonene   7- Nicotine

3- Nerol   8- Heroin

4- Ergosterol   9- Morphine

5- Pregn-4-en-3, 20-dione   10- Ephedrine

2 - Provide the chrmical reactions, which elucidate the chemical structure of ergosterol and how ergosterol is converted to vitamine D_2? explain your answer by chemical equations.   (15 marks)

3 - Illustrate by chemical equations the conversion of the following: (15 marks)

a) Dehydroepiondrosterone into testosterol.

   b) 2-(1-naphthyl)-ethyl magnesium bromide into diel´s hydrocarbon

c) 3-cyano pyridine into nicotine.

4 – Clearly show the structure elucidation of the following: (15 marks)

   a) Myrcene

   b) Geraniol

Prof. Dr. MM Abou-Elzahab, Prof. Dr. M Berghot & Dr. M Elsayed

MansouraUniversity
Faculty of Science
Chemistry Department
Code: Chem.341
Date : June 2012
Subject :
   Electrochemistry

Second Term
Third Level
Program : Chem/Botany, Chem/Zoology&Biophy.

Time Allowed : 2 hours
Full Mark : 60 Marks

Answer All Questions

First Question :   **(15 Mark)**

(1) Given the cell : $Pt, H_{2(g)}$ (1atm) / HCl (a_1) / HCl (a_2) / (1atm) $H_{2(g)}$, Pt

   (i) Complete : The type of the cell is ....
        because..   (3 Mark)

   (ii) Deduce in detail the cell emf   (7 Mark)

(2) The following values of the emf of the cell: $Ag|AgBr_{(s)}, KBr, Hg_2Br_2|Hg$

   at various temperatures is given as follows:

t^oC	20	25	30
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   write the electrode reactions, cell reaction and calculate at 25^oC:

   (i) E   (ii) ΔG (iii) ΔH (iv) ΔS (5 Mark)

Second Question :   **(15 Mark)**

   Write on :

   (i) Liquid junction potential   (E_j)
   (ii) Gas electrodes .   (iii) Exchange current (i_o)
   (iv) Metal- insoluble metal oxide electrode

Third Question :   **(15 Mark)**

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   (vi) The potential of calomel electrode depends on the activity of chloride ion.

Fourth Question :   (15 Mark)

    Complete :

      (1) For the $H^+/H_{2(g)}$ reaction at Pt electrode the value of the exchange current is…………….. and the process is…………………….. while at Hg is…………….. and the process is…………………….. while at Hg electrode the value of the exchange current is…………and the process is……………

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