المستوى الثالث - مجموعة البيولوجي + الفيزيا الحيوية

الاحصا الحيوي ر ٣٠١

جامعة المنصورة كلية العلوم -- قسم الرياضيات المـادة:إحـصاء حـيـوي كود المادة : ر ٣٠١ الدرجة الكلية : ٨٠ درجة		إمتحان دور يناير ٢٠١١ المستوى : الثـالـث شعب: برامج * التاريخ: ١٧ / ١ /٢٠١١ الزمن: سـاعتان

Answer the following questions

Q1: (25 marks)

A random sample of size 36 is taken from a population with mean μ and variance σ^2 and tabled as :

Classes	2 — 4	4 — 6	6 — 8	8 — 10	10— 12
frequency	6	7	10	7	6

(a) Find the median (M) , the mode (D) and standard deviation (S) **(15 marks)**

(b) Compute a 95 % confidence interval for the mean μ . **(10 marks)**

Q2: (25 marks)

(a) Let X be a random variable has density function $f(x)=\begin{cases} a e^{-3x} & : x \geq 0 \ \ and \ \ a > o \\ 0 & otherwise \end{cases}$

Find (i) The value of a (ii) p (X = 3) and p (X < 3) (iii) E (X) and V(X) .

(b) A fair coin is tossed 10 times. Let X be the number of heads which appear .

Find p(X = 4) and p(X < 4). **(10 marks)**

Q3: (30 marks)

(a) Let X be a random variable having values 1 , 3 , 5 , 7 , 9 , 11 and Y another random variable having values 2 , 4 , 6 , 8 , 10 , 12 . Compare between the dispersion of the values X and the dispersion of the values Y. **(10 marks)**

(b) A random sample of size 49 is taken from a normal population with mean 12 and variance 36 . Find $p(\overline{X} \geq 14)$. **(10 marks)**

(c) A random sample has elements 8.5 , 11.5 , 9.5 , 10.5 , 8 , 9 , 11 , 10 , 12 is taken from a normal population $N(\mu,\sigma^2)$ with unknown mean and unknown variance. Find 95% confidence interval for μ. **(10 marks)**

Note that : p (Z < 2.34) = 0.99 p (Z > 2.34) = 0.01 p (Z < 1.5) = 0.93

$Z_{0.025} = 1.96$, $Z_{0.05} = 2{,}58$ $t_{(0.025,8)} = 2.3$, $t_{(0.05,8)} = 3.35$ $t_{(0.025,9)} = 2.26$

برامج * (برنامج فيزياء حيوي ، علوم بيئة ، كيمياء ونبات . كيمياء وحيوان ، ميكروبيولوجى)

مع تمنيات اسرة التدريس (أ. د. محمود ياسين ، د. بية الدسوقي ، د. عديلة عثمان & د. محمد جاد)

مستوى الثالث - كيمياء ونبات - فسيولوجيا الإجهاد (٢١٥ن)

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany (Jan. 2011)

Educational Year: 3rd Level
Course(s): Physiology Stress
Time: 2 hrs.
Full mark: 60

Subject: Botany (B. 315)
Program: Chemistry / Botany
Date: 24 / 1 / 2011
Question mark: 20

Q1- Discuss the effect of stress physiology that induced by nutrient deficiency of nitrogen, sulfur, phosphorus, boron, potassium, and calcium on plant growth and metabolism.

Q2- Regarding the mechanism of water absorption by plant root, give an account of the effect of temperature as abiotic stress factor.

Q3- Account on the response of stomatal movement to watering and water stress.

Examiners: Prof. Omar El – Shahaby
Prof. Hamed El – Shora

المستوى الثالث - نبات وكيمياء - (ك ٢١٤) التحليل الحجمي والوزني (كيمياء نباتية)

Mansoura University **Faculty of Science** **Chemistry Department** **Subject: Chemistry** **Course(s):** Chem. (314)	كلية العلوم جامعة المنصورة	**First Term** **Their Year Botany & Chem..** **Date : Jan. 2011** **Time Allowed: 3 hours** **Full Mark: 60 Marks**

Answer the Following Questions

Section (A) [30 Marks]

1.a- 100 g sample of a pollutant was extracted into 100 ml cyclohexane. If its concn. = 10^{-8} M . What is the initial concentration in ppm or ppb units?

b- If a pollutant concentration = 10^{-7} M(100 ml) was extracted with 100 ml solvent. The remaining concentration =2.10^{-8} M . What are the No. of extractions performed to achieve 99.2 % from initial concentration.

c- Describe the main methods of preparation and application of ion exchangers. What is meant by separation factor and capacity?

d- What do you understand by:- (i) programm controlled gas chromatography. ;
(ii) Effect of pH. ; (iii) Gel Chromatography. ;
(iv) Affinity chromatography.

e. Discuss and compare between two of the most sophisticated techniques in chromatography.

Section (B) **[30 Marks]**

1. Explain the theory of acid – base indicator behaveior and its color – change range. **[6 Marks]**

2. Define the following (mention example and law if present).
1- Buffer solution 2- Precision.
3- Oxidation – reduction titration 4- solubility **[6 Marks]**

3. Derive a curve for the titration of 50.0 ml of 0.1M Na Cl with 0.1M AgNO3, calculate PCl of the solution after addition of 0.0, 10.0, 49.0, 50.0 and 60.0 ml Ag NO3. (Ksp of AgCl is 10^{-10}). **[12 Marks]**

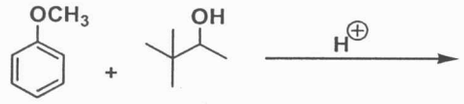
4. Explain and draw the standard hydrogen electrode and mention its disadvantages. **[6 Marks]**

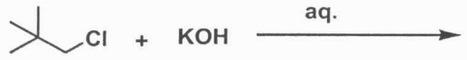
Examiners :
Prof. Dr. A. El- Wakail
Dr. W. Abou El-Maaty

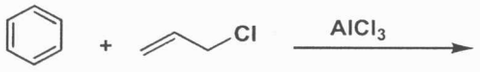
Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): Chem.336 Physical Organic Chemistry		First Term 3rd Level Biochem, Zoology and Botany/ Chem. Students Date: Jan. 2011 Time Allowed: 2 Hours Full Mark: **80** Marks

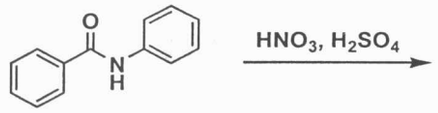
Answer All Questions

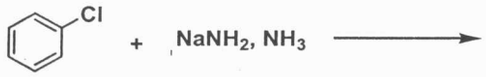
1- **Write the major product(s) of Five only from the following reactions. Explain the suitable mechanism for each one. (25 marks)**

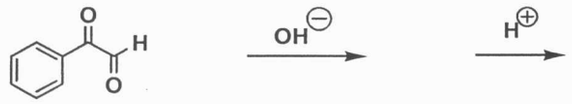
a)- 

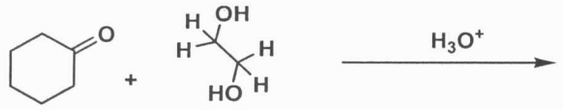
b)- 

c)- 

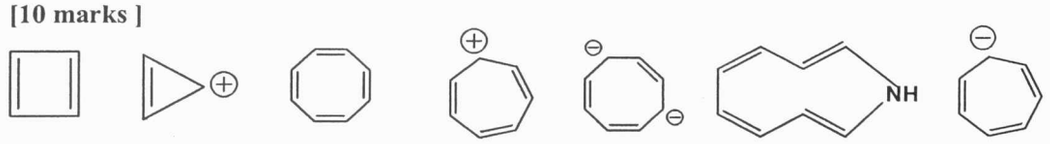
d)- 

e)- 

f)- 

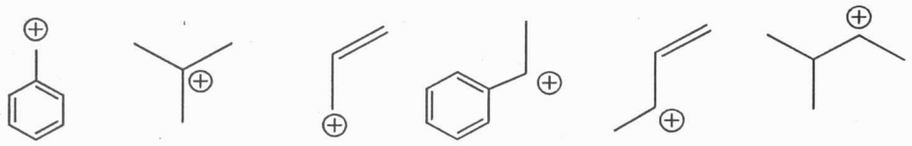
g)- 

2- **a)- Predict with discussion five only of the following structures is aromatic or nonaromatic. [10 marks]**



1 2 3 4 5 6 7

b)- Arrange the following carbonium ions according to the stability. Explain why? [10 marks]



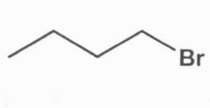
1 2 3 4 5 6

c)- Write what you know about the stability of benzene . [5 marks]

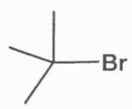
Please turn the paper

3- Answer <u>three only</u> of the following. [30 marks]

a)- Arrange with discussion the following isomers according to its reactivaty with ethanolic NaOH solution.



1



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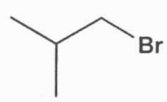

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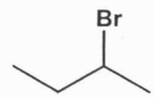
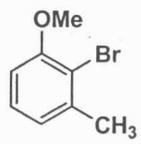


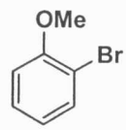
4

b)- Treatment of 1,1-diphenylethan-1,2-diol in acidic medium gives 2,2-diphenyl ethanal. Discuss this statment with equations.

c)- When 2-bromo-3-methyl anisole (1) is treated with $NaNH_2$, NH_3 no reaction takes place, while 2-bromo anisole (2) gave m-anisidine (3) under the same conditions . Explain the reasons.



1



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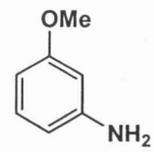


3

d) Propose with discussion a synthesis of 1-chloro-3-propylbenzene from benzene.

Best wishes

Pr.Dr. Moged , Dr. E. Eldesoky, Dr. E. Abdel galil

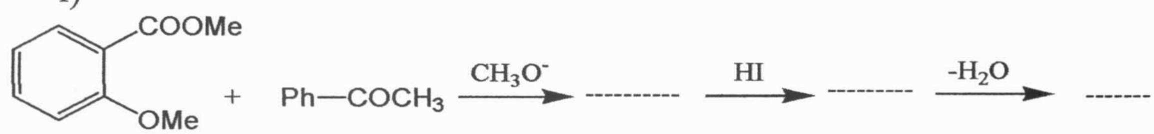
كيمياء المركبات غير متجانسة الحلقة ٣٣٧
المستوى الثالث

Faculty of Science Mansoura University Chemistry Department Subject: Chemistry Course(s):Org. Chemistry 337		1st Term 3 rd LEVEL Students Date: Jan. 2011 Time Allowed:2 hours Full Mark: 80 Marks

Answer All Questions

1) Predict the heterocyclic product(s) of only eight of i-x: (26 Marks)

i)



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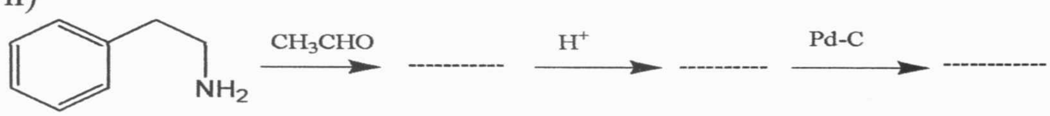
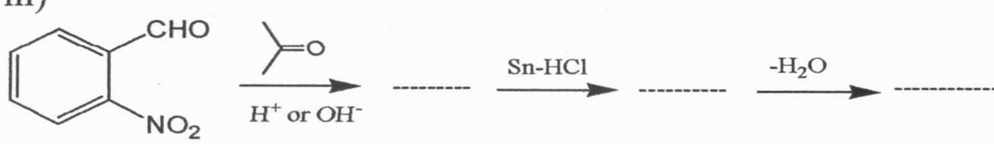


iii)



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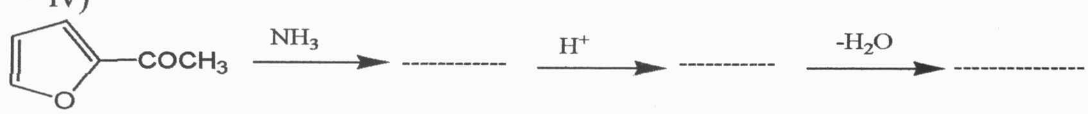

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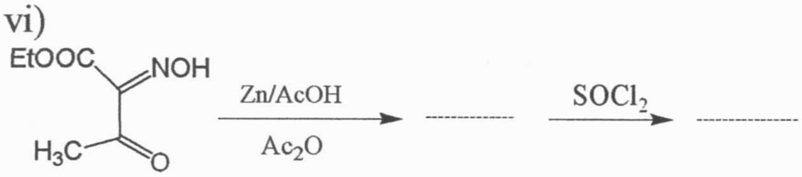
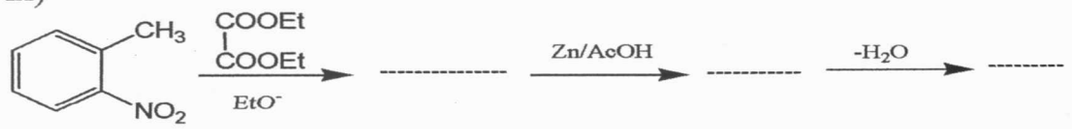


vii)

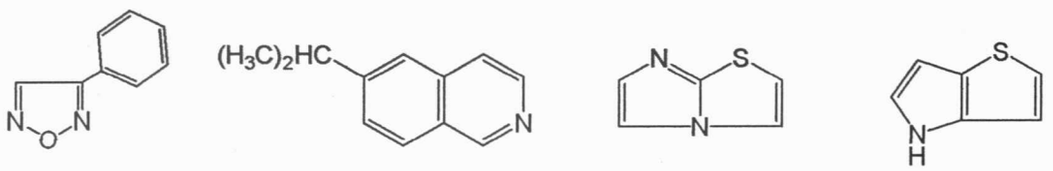
viii)

ix)



x)

2-A) Give acceptable name of each of these heterocycles : (8 Marks)



B) Diagram the following: (9 Marks)

i) Formation of penta-1,3-diene from pyridine

ii) Conversion of glycerol to quinoline

iii) Synthesis of furan-2,4-dicarboxylic acid from 2-pyrone-5-carboxylic acid

C)Show by equations these reactions: (10 Marks)

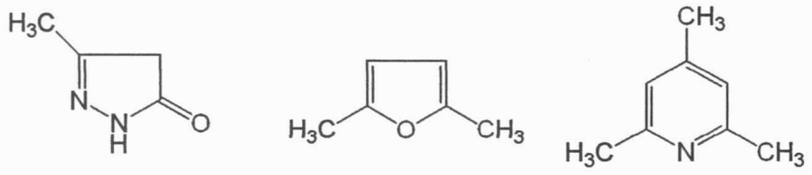
i) Pyrrole with $CHCl_3$/ NaOH

ii) Pyridine with perbenzoic acid

iii) Furfural with alc. KCN

iv) Quinoline with each of HNO_3 and $NaNH_2$

3-A) Design a synthesis of each of the molecules below starting with a β-ketoester e.g., ethyl acetoacetate: (15 Marks)



B) Write equations to show the reactions of : (12 Marks)

i) Furan with acetyl nitrate

ii) Thiophene with catalytic reduction using Raney nickel

iii) Pyridine with phenyl lithium

iv) Salicylaldehyde with acetic anhydride and sodium acetate

GOOD LUCK

Prof. Dr. Ez Kandil, Dr. E. Boshra and Dr. E. Keshk

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
First Term: Jun. 2011

Educational Year: Third Level **Program (Branch): Chimstry&Botany**
Subject: B (314) **Course(s): Photobiology and plant hormones**
Time: 2 hrs **Date:10 /1 /2011** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Q1- Describe the following facts: (20 marks)

a- Sun is the ultimate and hug source of energy and the earth intercepts very little amount of this energy. (5 marks)
b- Phytochrome and phytochrome effects. (5 marks)
c- The concepts and properties of light. (5 marks)
d- Light and synthesis of chemical compounds in living organisms. (5 marks)

Q2- a- From your scientific point of view, summarize: (10 marks)

1- Photobiological effects of light on growth and metabolism of living organisms. (5 marks)
2- Relationship between light spectra and viability of living organisms. (5 marks)

b- Labeled a diagram to explain how tryptophan is converted to IAA. (5 marks)
c- Construct the mechanism of ethylene action. (5 marks)

Q3- Write on each of the following: (20 marks)

a- Cytokinin degradation in plant cell. (5 marks)
b- Synthetic auxin as a weed killer. (5 marks)
c- Regulation of gibberellic acid biosynthesis. (5 marks)
d- Triple response as a growth maneuver. (5 marks)

Examiners: Prof. Mohamed Nageeb Prof. Samia Haroun