جامعة المنصورة – كلية العلوم
قسم الرياضيات
التاريخ : ٢٥ / ١٢ / ٢٠١٢ م
الدرجة الكلية : ٨٠
الزمن : ساعتان

امتحان دور يناير ٢٠١٣م
برنامج : *
المستوى:الثالث
اسم المقرر : احصاء حيوى
كود المادة : ر ٣٠١

Answer the following questions:

[1] a- A random sample of 100 patients is selected and treated by a new drug for AIDS. After 8 weeks, 20 of them show signs of improvement. Find a 99 % confidence interval for the true proportion of all patients treated by this new drug and show improvement after 8 weeks. **(10 Marks)**

b- Suppose that in a certain city , the probability that a man has high blood pressure is 0.18 If we randomly select 10 men from this city .

i) Find the probability that exactly 3 men have high blood pressure

ii) Find the expected number of men with high pressure **(10 Marks)**

[2] a- A Coin is tossed 4 times , let X denotes the number of heads occurs . Find

i) $P(X=3)$ ii) $E(X)$ iii) $Var(X)$ **(10 Marks)**

b- A sample of size 64 is drawn from a population with $\mu = 3.2$ and a standard deviation $\sigma = 1.6$. Find the Probability that the sample mean will be

i) more than 3.5 ii) less than 2.7 **(10 Marks)**

c- In a certain population, suppose that the number of deaths per year from cancer has a Poisson distribution with average 6 Find the probability that in a year there are

i) Exactly 4 deaths ii) Less than or equal two deaths **(10 Marks)**

[3] The following table shows the age distribution (in years) of 76 patients who complained of flu. **(30 Marks)**

Age	5.5 – 10.5	10.5 – 15.5	15.5 – 20.5	20.5 – 25.5	25.5 – 30.5	30.5 – 35.5
frequency	6	10	20	22	13	5

Find i) The sample Mode ii) The sample median iii) The sample variance

$\varphi(1.5) = 0.933$, $\varphi(-2.5) = 0.0062$, $t_{(0.025,8)} = 2.306$, $t_{(0.025,9)} = 2.262$

$Z_{0.005} = 2.58$, $Z_{0.025} = 1.96$

* برامج : كيمياء و حيوان - فيزياء حيوى - ميكروبيولوجى – كيمياء ونبات – علوم البيئة

مع أطيب التمنيات بالنجاح د. فاتن شيحه – د. نورا فخرى

(٣٢٦ د) المستوى الثالث - كيمياء وبنات - كيمياء عضوية فيزيائية

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: December 31, 2012 Time Allowed: 2 Hours Full Mark: **80** Marks

Answer All Questions

Questions 1 (20 marks)

Answer the following questions. Write short comment about your answer:

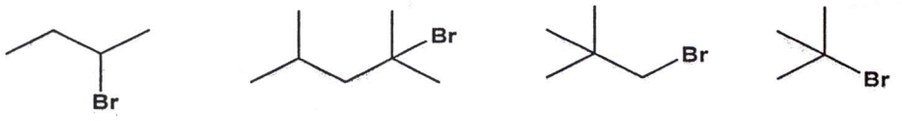
A) Rank the following compounds in order increasing the rate of solvolysis (SN^1) in aqueous acetone (slowest ⟶ fastest).

$(CH_3)_2CHCH_2CH_2Br$ b; $(CH_3)_2CHCH(Br)CH_3$ c; $(CH_3)_2CHCH(Br)C_6H_5$

B) The number of possible dichloronitrobenzene isomers is?

a; 3 b; 4 c; 6 d; 8

C) Which of the following alkyl halides would be most likely to give a rearranged product under SN^1 conditions.



(a) (b) (c) (d)

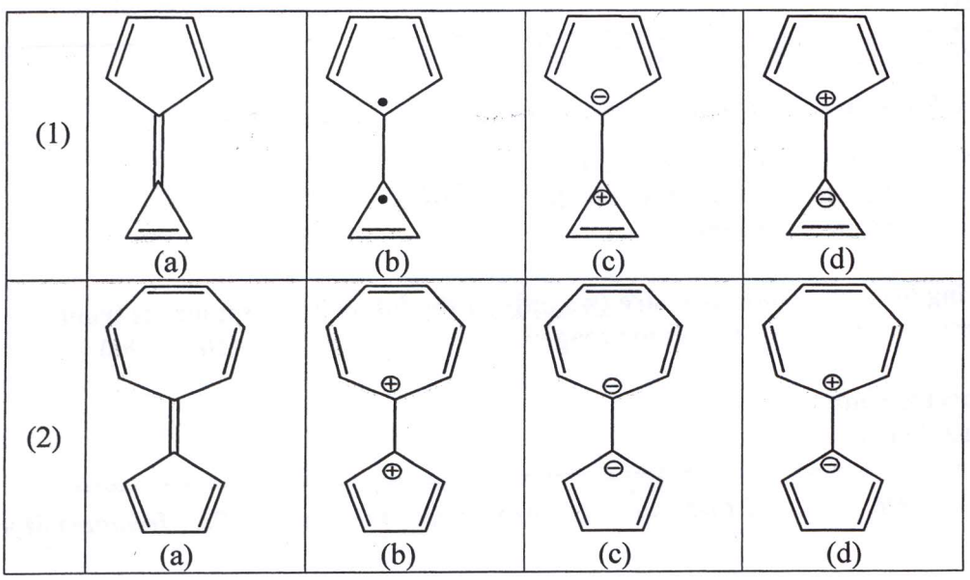
D) Which of the following statements pertaining to an SN2 reaction are true?

1. **The rate of reaction is independent on the concentration of the nucleophile.**
2. **The nucleophile attacks carbon on the side of the molecule opposite the group being displaced.**
3. **The reaction proceeds with simultaneous bond formation and bond rupture.**
4. **Partial racemization of an optically active substrate results.**

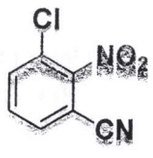
(a) 1,4 (b) 1,3,4 (c) 2,3 (d) All of them.

Questions 2 (20 marks)

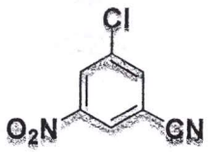
A) In each of the following isomeric sets, select one should be the top of stability. Mention the reasons? (10 marks)



B) Arrange the following in order of their reactivity towards NaOMe? Explain the suitable mechanism for one of them?



1



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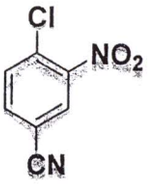
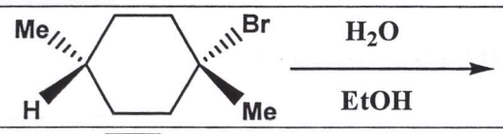
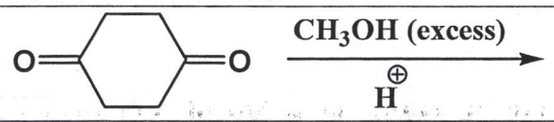
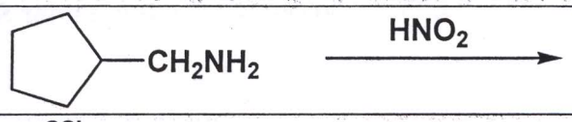
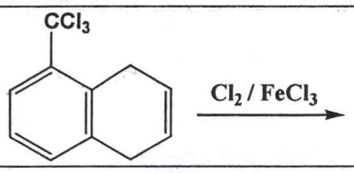
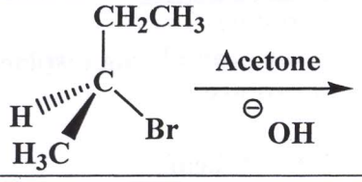
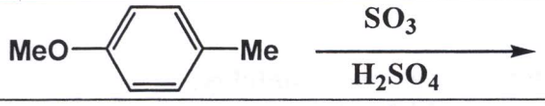


3

Questions 3 (20 marks)

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

a;	
b;	
c;	
d;	
e;	
f;	
G;	*p*-methoxybenzaldehyde 

Questions 4 (20 marks)

A; Write shortly what you know about two only of the following: (10 marks)

a; Conjugation (mesomeric) and Hypercojugation effects.
b; The effect of substrate structure on both SN^1 and SN^2 reactions.
c; Orientation of monosubstituted benzene.

B; Write equations showing how you could prepare two only of the following compounds from benzene and any necessary organic or inorganic reagents (10 marks)
a; Cyclohexyl benzene.
b, 3-bromo-4-methylacetophenone
c; 2-bromo-4-nitrobenzoic acid

With our best wishes *Prof. Dr. El-Sayed El-Desoky, Dr. Ahmed El-Mekbaty and Dr. Mohamed Monier*

المستوى الثالث - كيمياء ونبات - بيولوجيا جزيئية دورة عسكرية ٢٠١٢

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. 2013

Educational Year: Third level
Program (Branch): Chemistry-Botany
Subject: Microbial Genetics and Molecular biology
Course(s): N313
Time: 2 hrs Date:03 /01 /2013
Full mark: 60 **Question mark**: 20

Answer the following questions:

Q1: Discuss the following:

1. Different strategies of viral reproduction.(8 marks)
2. Interrupted mating technique and its using in gene mapping of bacterial chromosome.(8 marks)
3. Chemical induced mutagenesis. (9 marks)

Q2: A. Answer the following either true or false and correct the false ones (10 marks):

1. The deamination of a guanine gives uracil which leads to a transition base substitution.
2. Phage M_{13} infects E.coli but does not lyse its host cell.
3. Nonsense mutation means that the base substitution alters a codon for a specific amino acid to give a stop codon.
4. Replicase enzyme can synthesize RNA from RNA.
5. The leading strand is synthesized from $5^\backslash$ to $3^\backslash$ whereas the lagging strand is synthesized from $3^\backslash$ to $5^\backslash$.
6. A lysogenic bacterial cell is that containing F plasmid integrated into its chromosome.
7. Not all bacteriophages are capable of inducing transduction.
8. Frame shift is a phenomenon in which the nitrogenous bases of DNA could exist in an alternative forms.
9. UV induces mutations as a result of pyrimidine dimer formation.
10. Biochemical mutations are those in which the expression of the mutation depends on the environment.

B. Define and state the function of each of the following: Enhancers, Promoter, Operator, Diausic growth curve of bacteria, age-regulated genes.

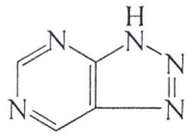
Q3: Attenuation is a type of regulation that depends on the fact that in prokaryotes transcription and translation are linked processes. Explain the statement to show the real meaning of attenuation, how it works, give an example and use drawings to illustrate your answer.

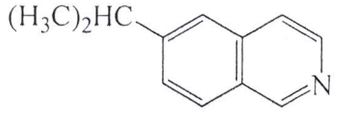
Examiners: Prof. Yehia Ellazeik Dr. Linda Samaan

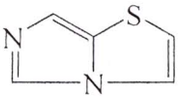
Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): Org.Chem.337		1st Term 3rd Level Students Date: 21 / 1 / 2013 Time Allowed: **2** Hours Full Mark: **80** Marks

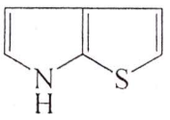
Answer All Questions

1- a) Give acceptable name of each of these heterocycles: **[8 Marks]**

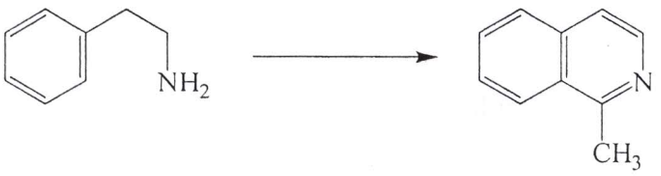
i) 

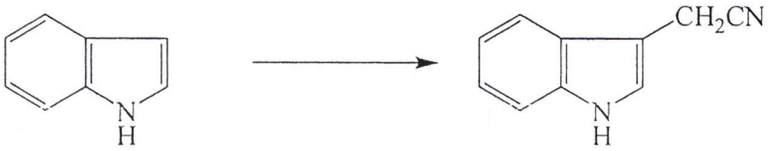
ii) 

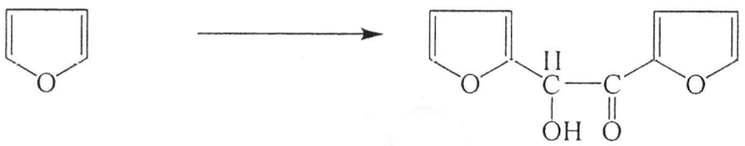
iii) 

iv) 

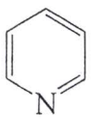
b) Diagram these conversions: **[18 Marks]**

i) 

ii) 

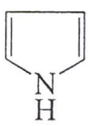
iii) 

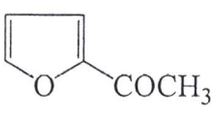
2- Complete these reactions: **[27 Marks]**

i)  + $NaNH_2$ ⟶ .....

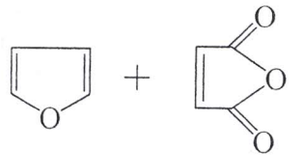
ii) $H_2C{=}\underset{H}{C}{-}CHO + NH_2NH_2$ ⟶ .....

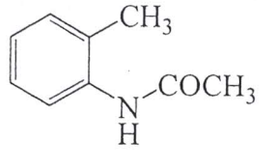
iii) $CH_3COCH{=}CHCH_3 + NH_2OH$ ⟶ .....

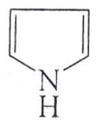
iv)  + CH_2O $\xrightarrow{K_2CO_3}$ .....

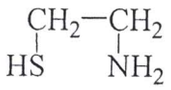
v)  + NH_3 ⟶ .....

P. T. O.

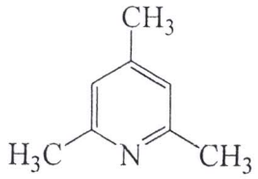
vi)  heat .....

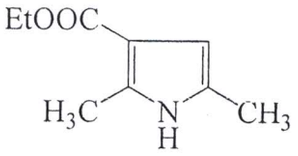
vii)  Me_3CO^- ..... H^+ .....

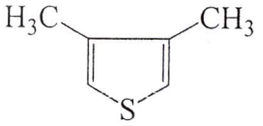
viii)  + $CHCl_3$ NaOH .....

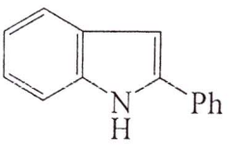
ix)  HCOOEt ..... P_2O_5 .....

3- a) Design one synthesis of each of the molecules below: **[15 Marks]**

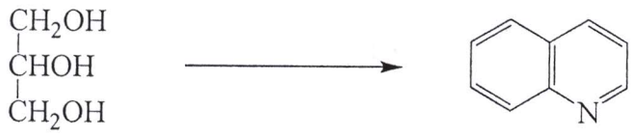
i) 

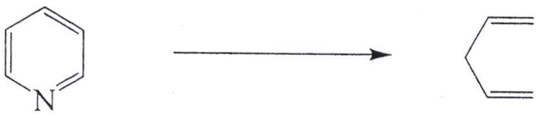
ii) 

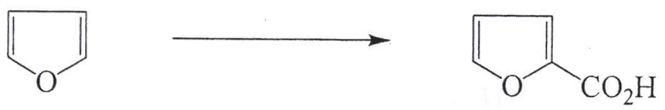
iii) 

iv) 

b) Diagram the following: **[12 Marks]**

i) 

ii) 

iii) 

Best Wishes and Good luck

Examiners: Prof. Dr. Ez Kandil, Prof. Dr. Evelin Boshra, A.Prof. Dr. Eman Keshk

المستوى الثالث كيمياء حيوية الفصل الدراسي الأول ٢٠١٢/٢٠١٣
الكيمياء الحيوية

Mansoura University
Faculty of Science
Chemistry Department
Course(s): (323) Biochemistry,
Botany and Zoology Programs

First Term, Level Three.
Date : 10 January 2013
Time Allowed : 2 hours
Full Mark : 80 Marks

ANSWER THE FOLLOWING QUESTIONS

1) a- Complete the following sentences: *(15 Marks)*

i- *d*-Block elements are often called ------ because their position in the periodic tables in between the *s*-block and *p*-block elements.

ii- The covalent radii of the elements ------ from left to right across a row in the transition series, until near the end when the size ------ slightly.

iii- The melting and ------ points of the transition elements are generally ------.

iv- The color of a transition metal complex is dependent on ------

v- ------ arises as a result of unpaired electron spins in the atom.

vi- The permanganate $[MnO_4]^-$ is a strong ------ agent.

vii- The coordination number ------ is the most common in the transition metals complexes giving an ------ structure.

viii- The coordination number ------ is much less common in the transition metals complexes giving ------ structure.

ix- ------ is the fourth most abundant element by weight, Ti the ------ and Mn the twelfth.

x- The second and ------ row elements are much ------ abundant than the first row.

b- Chose the correct answer: *(5 Marks)*

i- Oxyanion VO_4^{3-} is ------ **(tetrahedral or octahedral)**

ii- The molar conductivity of $[CoCl(NH_3)_5]Cl_2$ is ------ **(electrolyte or nonelectrolyte)**

iii- Square planar $[Ni(CN)_4]^{3-}$ complex ion has ------ magnetic moment. **(paramagnetic or diamagnetic)**

vi- The linear $[Cl\text{-}Au\text{-}SCN]^-$ complex ion has ------ isomerism. **(geometric, linkage, coordination)**

v- The $[Co(NH_3)_4(H_2O)_2]^{2+}$ complex ion has ------ geometrical shape. **(octahedral, tetrahedral, square planar)**

vi- The $[Co(NH_3)_5NO_2]Cl_2$ complex has ------ isomerism. **(linkage, Coordination, Geometric)**

c- Give only **one method** of the extraction of **Vanadium** metal from its ores. *(5 Marks)*

2) a- Name the following complexes and indicate the possible isomers: *(15 Marks)*

i- $[Ti(H_2O)_5Cl]Cl_2$

ii- $[Cl_2(NH_3)_2Mn\text{-}(OH)_2\text{-}Mn(NH_3)_2Cl_2]$

iii- $[Co(NH_3)_6][Cr(C_2O_4)_3]$

iv- $[Ni(PPh_3)_2Cl_2]$

v- $[Mn(CN)_6]^{4-}$

vi- $[CoCl_2(en)_2]^+$

b- Write the structural formula of the following compounds: *(10 Marks)*

i- Dichlorobis(triphenylphosphine)nickel(II).
ii- Tris(ethylenediamine)chromium(II) bromide 4-water
iii- Sodium tetraoxochromate(VI).
iv- Tetramineplatinium(II) tetrachloroplatenate(II).
v- Pentaminenitritonickel(II) ion.

3) a- Complete the following reactions: *(10 Marks)*

i- $MnO_2 + HCl \rightarrow$ ..... + ...

ii- $FeCr_2O_4 + C \xrightarrow{\text{electric furance}}$ - - - - - + - - - - - + - - - - -

iii- $Sc + NaOH \rightarrow$ ..... + ...

iv- $2VCl_4 \rightarrow$ ..... + ...

v- $Ti + \text{Conc. } HCl \rightarrow$ .....

b- Give one example of the following ligands: *(10 Marks)*

i- Binegative bidentate ligand.
ii- Neutral bridging ligand.
iii- Neutral bidentate ligand form five membered ring.
vi- Tridentate ligands.
v- Ambidentate ligands.

c- True and false (circulate the correct response): *(10 Marks)*

i- *T – F* Vitamin B_{12} contains Co(II) complex.
ii- *T – F* Mn is prepared by electrolysis in aqueous solution.
iii- *T – F* Van Arkel method used Mg for preparation of metals.
iv- *T – F* TiO_2 is amphoteric.
v- *T – F* Fe rusts slowly in air in presence of humidity to Fe_2O_3.
vi- *T – F* Four series of transition elements are formed by filling the *3d, 4d* and *5d* shells of electron.
vii- *T – F* Ni is much more reactive than Pd.
viii- *T – F* Mn(IV) is more basic than Mn(VII).
ix- *T – F* V_2O_5 is amphoteric oxide.
x- *T – F* Ti is smaller in size than V.
xi- *T – F* Hemoglobin contains Fe.(II)

Best Wishes

Prof. Magdy Bekheit
Prof. Nagwa Nawar
Dr. Ahmed Lutfi

^{21}Sc	^{22}Ti	^{23}V	^{24}Cr	^{25}Mn	^{26}Fe	^{27}Co	^{28}Ni	^{29}Cu	^{30}Zn