

TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS

MATERIAL SCIENCE LEVEL 2 EXAMINAR DR. AYMAN EL TAHAN

COURSE TITLE: Mechanics COURSE CODE: MS 2131

DATE:01 JAN, 2018

TERM: FIRST

TOTAL ASSESSMENT MARKS: 100

c) C.

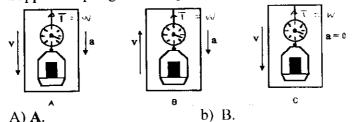
TIME ALLOWED: 2 HOURS

d) All the previous

First question:

1- Choose the correct answer:

I Suppose a spring scale suspends a 10 Kg mass. In which of the following diagram will reed 98N.



II A ball is thrown up in the air. It goes up and then eventually comes down again. On its way up (after being let go), which is correct?

- a) Its acceleration decreases
- b) Its acceleration increases
- c) Its accelerations stay pretty much the same
- d) Impossible to stay unless its direction relative to the horizontal is known.

III A projectile is fired at an angle of 30° to the horizontal. An identical projectile with the same initial velocity is fired at an angle of 60° to the horizontal. Which projectile has the greater range (ignore air resistance)?

- a) The projectile fired at an angle of 60°.
- b) The projectile fired at an angle of 30°
- c) Without knowing the mass, it is impossible to say.
- d) They both have the same range.

IV A woman exerts the constant horizontal force on a large box. As a result, the box moves across a horizontal floor at a constant speed " v_0 ". The constant horizontal force applied by the woman:

- a) Has the same magnitude as the weight of the box.
- b) Is greater than the weight of the box.
- c) Has the same magnitude as the total force which resists the motion of the box.
- d) Is greater than either the weight of the box or the total force which resists its motion.

A boy and a girl are riding on a rotating turntable that is turning at a constant rate. The boy is near the outer rim and the girl is closer to the center of rotation. How do their linear (that is, tangential) velocities compare?

- a) The boy and the girl have the same linear velocity.
- b) The girl has the greater linear velocity.
- c) The boy has the greater linear velocity.
- d) We need to know the radius of the merry-go-round to answer the question.

Continu



EXAMINATION for 2TH LEVEL (CHM-ENTOMOLOGY)

COURSE TITLE: Applied Statistics (MA2122)

TERM: First

TOTAL ASSESSMENT MARKS: 50

TIME ALLOWED: 2 Hours

Answer the Following Questions:

DATE: 1 January 2018

Q1: The following data are sorted in an ascending order; find X, Y, Z and W;

if the mean = 11, the median = 7.5, the mode = 7 and the range = 20:

(10 Marks)

Q2: (i) Let $S = \{a_1, a_2, a_3, a_4\}$ and p be a probability function on S:

(a) Find $p(a_1)$ and $p(a_2)$ if $p(a_3) = p(a_4) = \frac{1}{4}$ and $p(a_1) = 2p(a_2)$.

(b) Find
$$p(a_1)$$
 if $p(\{a_2, a_3\}) = \frac{2}{3}$, $p(\{a_2, a_4\}) = \frac{1}{2}$, and $p(a_2) = \frac{1}{3}$.

(ii) For the events $C, D \subseteq S$; if $P(C \cap D) = \frac{1}{4}$, $P(C/D) = \frac{1}{3}$, $P(D/C) = \frac{3}{5}$

Find: (a) P(C)

(b) P(D) (c) P(C/D') (d) $P(C/C \cup D)$

(10 Marks)

O3: If the probability distribution of the random variable X is defined by:

(10 Marks)

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	X	8	12	16	20	24	
	p(x)	1	1	3	k	1	
		8	<u></u>	8		12	
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Find: (i) the value of k

(ii) E(X + 1)

(iii) σ^2

Q4: Some leaves of a certain tree are collected to extract a drug from them. A study is done to determine if there is a correlation between the height of the leaves and the concentration of the drug.

Height (X)	2	4	7	5	3	5	6	4	7	3
Concentration(Y)	3	5	9	7	4	6	7	6	8	5



- Find Pearson correlation coefficient.
- ii. Find the equation of the regression line.
- iii. Estimate the value of Y when X = 10.

(10 Marks)

Q5: If X is a random variable following a normal distribution such that $X \sim N(50,25)$, calculate the following probabilities:

$$(i)P(40 < X < 60)$$
 $(ii)P(X > 60)$ $(iii)P(X < 45)$ $(iv)P(55 < X < 65)$

Note that:
$$A(1) = 0.34134$$
, $A(2) = 0.47725$, $A(3) = 0.49865$

WITH ALL MY BEST WISHES

Dr. Wafaa Anwar

EXAMINARS: 1- DR.WAFAA ANWAR ABD EL LATIF

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TANTA UNIVERSITY FACULTY OF SCIENC CHEMISTRY DEPARTMENT



	INAL EXAM FOR 2 nd I	ACTEL STODENTS (A	LL SECTIONS)	
COURSE TITLE	CHEMISTRY OF THE ELEM		TIME ALLO	WED 2 H
CODE	CH21	07		
DATE: JAN 3, 2	017 TERM: FIRST	TOTAL ASSESSM	ENT MARKS	100

[I]. Give reasons for the following.

(20 Marks)

- 1- Water has abnormal low volatility and the stability of hydrides decreases down group VI
- 2- Silanes are strong reducing agents, but alkanes are chemically unreactive.
- 3- Li and group II metals form nitrides on heating in air
- 4- PCl₅ is known but PH₅ is not.

[II]. Draw and explain the structure of the following:

(20 Marks)

- 1- Phosphorus trioxide and pentaoxide
- 2- Orthoborates and metaborates
- 3- Beryllium halides and hydrides
- 4- Diborane
- 5- Silicones

[III]. Rank "FOUR ONLY" of the following series from high to low according to the given criteria and explain reasons: (20 Marks)

1- NaCl, MgCl₂, AlCl₃

(Polarization and polarizability)

2- NH₃, PH₃, AsH₃

(Donor properties and stability)

3- HF, HCl, HBr, HI

(Acidity Strength)

4- BF₃, BCl₃, BBr₃

(Lewis acid strength)

5- Li, K, Cs

(Reaction with water)

[IV]. Compare between the following:

(20 Marks)

- 1- Trimethylamine and trisilyamine in structure and donor properties.
- 2- Group I and II elements in softness.
- 3- Diamond and Graphite.
- 4- SO₃, SO₂ and SeO₂

[V]. Choose the correct answer "FIFTEEN ONLY" with REASON: (20 Marks)

- 1- In which of the following compounds, nitrogen exhibits lowest oxidation state?
 - a- HNO3
- b- N₂H₄
- c-N₂

d-NH2OH

e- NH₃

2- Which of the following contains P - O - P bond?

a- Tripolyphosphoric acid

c- Hypophosphorous acid

b- Pyrophosphoric acid

d- a and b

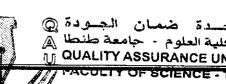
3- Which of the following compound is ionic?

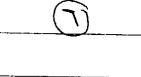
a- PCls

b- CCl₄

c- PbF₄

d- PbBr4





FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY EXAMINATION FOR SECOND YEAR STUDENTS COURSE TITLE: PRINCIPLES OF ANALYTICAL CHEMISTRY COURSE CODE:CH2105 DATE: 6-1-2018 TERM: FIRST TERM TOTAL ASSESSMENT MARKS: 100 TIME ALLOWED: 2 HOURS

Question (I): State true ($\sqrt{\ }$) or false (\times) and give the reasons for your answer:

(45 Marks)

- 1) The acidic medium is the best one for the titration of sodium oxalate by potassium permanganate.
- 2) The titration of 0.1N sulfurous acid by sodium hydroxide is stepwise. $(K_{1}=1.2\times10^{-2}, K_{2}=5.6\times10^{-8})$
- 3) EDTA can be called chelating agent.
- 4) The normal hydrogen electrode contains titanium sheet.
- 5) SCN ions can be determined satisfactory using Mohr's method.
- $_{2}$ 6) The titration of 1 N carbonic acid can be titrated. ($K_1=4.2\times10^{-7}$, $K_2=4.8\times10^{-11}$)
 - 7) The pH value in the titration of weak acid against weak base equals $1/2 \text{ pK}_w + 1/2 \text{ pK}_a + 1/2 \log x$ C_{salt}
 - 8) It is possible in Volhard's method to complete titration in presence of AgCl.
 - 9) For writing the half cell equation, the reduced form can be written in the left hand.
 - 10) Br and I ions can be determined by Volhard's method without any titration error.
 - 11) HCrO₄ or Cr₂O₇ ions can be used to detect the end point for the precipitation titration of Cl ions using Mohr's method.
 - 12) Nernest equation can be applied for the half cell reaction, if the solutions concentration equals 1 N.
 - 13) Each of Fe³⁺ and Ca²⁺ can be determined using EDTA titration.
 - 14) Lewis acid can be defined as hydrogen acceptor.
 - 15) Heating is necessary for Al³⁺-EDTA titration.

Question (II): Choose the correct answer from each of the following and give the reasons: (15 Marks)

1)	Which of these metal ic	ons can be masked using (CN ions?	
	a) Mg ²⁺	b) Zn ²⁺		c) Ni ²⁺
2)		weak acid or strong acid c		
3)	For Mercurimetric dete	indicators b) universal in ermination of cyanide,	idicator c) methyl oran	ge indicator
	a) Fe ³⁺	b) Hg [↔]	c) Hg ⁺ was used	as indicator
4)	Hydrogen acts as a red	ucing agent,		
	a) by taking oxygen	b) by giving electrons	c)by taking hydrogen	d)Both A and B

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			TANTA UNIVERSITY	
-	}		FACULTY OF SCIENCE	•
The same			DEPARTMENT OF CHEMIS	TRY
	<u> </u>	Final Examina	ation of for second year students	(Double major)
1950	OURSE TITI	LE Organic Che	mistry 2	COURSE CODE: CH2111
	1	1		1

Answer the following questions:

(Each question 25 marks)

1] Correct by equations each of the following:

- i) Ozonolysis followed by hydrolysis of isobutene gives acetaldehyde and formaldehyde.
- ii) Alkaline hydrolysis of 1,1-dichlorobutane and /or 2,2- dichlorobutane forms the same product.
- iii) Treatment of a mixture of benzaldehyde and formaldehyde with NaOH gives sodium benzoate and methyl alcohol.
- iv)Acetic anhydride formation is the reaction of silver acetate with ethylchloride.
- v) Secondary alcohol is formed from the reaction of Grignard reagent with formaldehyde.

2] A) Carry out the following conversions:

- i) Acetylene into 5-methyl-2-hexyne.
- ii) Acetone into Acetic acid.
- iii) Ethylene into tartaric acid.
- B) Tow hydrocarbons of the M.F. C_6H_{12} are treated separately with acidify KMnO₄, in one case, the products are butanone and acetic acid; in the other case, the products are 3-methylbutanoic acid, carbon dioxide and water. Write their structures by using equations.

3] A) Explain by equations, what is the action of:

a- Aqueous KOH

b-Ammonia

On each of the following compounds

i) β - and γ –Chlorobutyric acid

ii) Acetaldehyde

iii) Ethylchloride

iv) Ethylacetate

Please turn over