LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

SECOND SEMESTER – **APRIL 2022**

UCH 2301 – CHEMISTRY FOR BIOLOGY

(21 BATCH ONLY)

Date: 27-06-2022   Dept. No.   Max. : 100 Marks
Time: 01:00 PM - 04:00 PM

SECTION A			
Answer ALL the Questions.			
1.	**Define the following.**	**(5 x 1 = 5)**	
a)	Universal antidote.	K1	CO1
b)	R_f value.	K1	CO1
c)	Ionic product of water.	K1	CO1
d)	Ambidentate ligand.	K1	CO1
e)	Co-polymers.	K1	CO1
2.	**Answer all the questions.**	**(5 x 1 = 5)**	
a)	Recall the composition of LPG.	K1	CO1
b)	List the characteristics of a solvent to be used for recrystallization.	K1	CO1
c)	State the law of volumetric analysis.	K1	CO1
d)	Give an example of amorphous solid.	K1	CO1
e)	Draw the structure of PVC.	K1	CO1
3.	**Match the following.**	**(5 x 1 = 5)**	
a)	Acid ---- lactose	K2	CO1
b)	Purification ---- acetic acid + sodium acetate	K2	CO1
c)	TLC ---- HCl	K2	CO1
d)	Buffer ---- Separation technique	K2	CO1
e)	Milk ---- distillation	K2	CO1
4.	**Choose the correct answer for the following.**	**(5 x 1 = 5)**	
a)	Flammable chemicals are stored _____ (i) where ever it is easy to get to (ii) in special flammable storage lockers (iii) near water sources (iv) in glass containers	K2	CO1
b)	Distillation is the best method to separate liquids having sufficient difference in their (i) solubility (ii) melting point (iii) boiling point (iv) none of the above	K2	CO1
c)	ppm stands for _____ (i) parts per meter (ii) parts per million (iii) parts per molarity (iv) pages per million	K2	CO1
d)	The energy evolved when one gram molecule of the crystal is formed from gaseous ions is _____. (i) bond energy (ii) ionization energy (iii) lattice energy (iv) electron affinity	K2	CO1
e)	Soaps are _____ based soapy detergents. (i) water (ii) kerosene (iii) oil (iv) acid	K2	CO1

SECTION B

Answer any TWO of the following in 100 words. **(2 x 10 = 20)**

5.	a.	Write the general rules to be followed in handling of acids, toxic and poisonous chemicals.	K3	CO2
	b.	Apply a suitable method to purify the crude sample of benzoic acid.		
6.	a.	Illustrate the types of buffer solution with suitable examples.	K3	CO2
	b.	Calculate the normality of a solution containing 4.9 g of potassium dichromate crystals in 500 mL of water.		
7.		Predict the hydrogen bonding involved in carboxylic acids and nucleic acids.	K3	CO2
8.		Relate the terms chromophore and auxochrome with suitable examples.	K3	CO2

SECTION C

Answer any TWO of the following in 100 words. **(2 x 10 = 20)**

9.		Examine the importance of MSDS of a chemical.	K4	CO3
10.		Write the definitions of the following: i) molarity ii) normality iii) accuracy iv) precision	K4	CO3
11.		Analyse the crystal structure of KCl.	K4	CO3
12.	a.	Illustrate the principle and applications of gel electrophoresis. (5)	K4	CO3
	b.	Outline the process of pasteurisation of milk. (5)		

SECTION D

Answer any ONE of the following in 250 words. **(1 x 20 = 20)**

13.	a.	Evaluate the general rules to be followed while handling the chemicals in the chemistry laboratory. (10)	K5	CO4
	b.	Summarize the different distillation techniques for the purification of liquids. (10)		
14.	a.	Enumerate the hybridization and geometry of the following molecules (i) ammonia (ii) methane (iii) water. (10)	K5	CO4
	b.	Explain the geometrical isomerism of square planar and octahedral complexes. (10)		

SECTION E

Answer any ONE of the following in 250 words. **(1 x 20 = 20)**

15.	a.	Write the principle and applications of the following chromatographic technique (i) paper (ii) TLC (5+5)	K6	CO5
	b.	Summarise the different types of error and write the methods of minimizing errors. (10)		
16.	a.	Explain the structure and the functions of haemoglobin and chlorophyll. (10)	K6	CO5
	b.	Describe the mechanism of cleansing action of soaps. (10)		

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