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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI - 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2024.

(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.Sc., CHEMISTRY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
II	PART - III	CORE - 2	U23CH202	GENERAL CHEMISTRY-II

	& Sessi	ion: 05	.11.2024 / AN	Time: 3	hours	Maxi	mum: 75 Marks
Course Outcome	Bloom's K-level	Q. No.	SECTION - A (10 X 1 = 10 Marks) Answer ALL Questions.				
CO1	K1	1.	Choose which or	ne of the following	g is an exampl	e for hard ac	rid.
			a) Ag+	b) Li ⁺	c) CH3		d) CN-
CO1	K2	2.	Indicate the natu	are of the solution	n at pH of 8.5	5.	
			a) acidic	b) basic		eutral	d) none of these
CO2	K1	3.	Identify in dibor	ane ,number of ϵ	electrons that a	ccounts for 1	banana bond is
			·				
			a) 6	b) 4	c) 2		d) 3
CO2	K2	4.	Select which ion	has the maximu	m tendency for	complex for	mation?
			a) Li+	b) Na+	c) K+		d) Rb+
CO3	K1	5.	The compounds	which are formed	d by halogens a	mong thems	selves are known
			as.				
			a) pseudohalog	ens	b) interhaloge	ns	
			c) transition e		d) trans urani	um elements	S
CO3	K2	6.	Write the gas wh	ich is radioactive			
			a) He	b) Ne	c) Xe		d) Rn
CO4	K1	7.	Name the produc	ct obtained by th	e polymerisatio	on of ethylene	ē.
			a) polyethylene	b) polybutene	c) polyprope	ene	d) all of these
CO4	K2	8.	The product product.	duced by the add	dition of HBr t	o propylene y	yields as a
			a) 1-bromo propane b) 2-bromo propane				
			c) 1,2 di-bromo p		d) none of thes	-	
CO5	K1	9.	The side chain h		· ·		vh.
			a) radical mecha	_	b) ion pair me	=	5
			c) ionic mechani		d) cyclic electr		hanism
CO5	K2	10.	,	nber of π electron			
	·		a) 6	b) 10	c) 12		d) 8
Course	Bloom's K-level	Q. No.	$\frac{\text{SECTION} - B \text{ (5 X 5 = 25 Marks)}}{\text{Answer } \underline{\text{ALL }} \text{Questions choosing either (a) or (b)}}$				
CO1	КЗ	11a.	Write a notes on	HSAB principle.	(OD)		
CO1	КЗ	11b.	Annly the concer	at of the common	(OR)	znlain how it	affect solubility.
	IXO	110.	Discuss its impo		TOTI CITCUL TO EX	spiaiii iiow it	ancer solubility.

CO2	КЗ	12a.	Examine the similarities and diagonal relationship in chemical properties between lithium and magnesium. (OR)
CO2	К3	12b.	Apply your understanding of chemical reactions to describe the preparation of potassium chlorate (KClO ₃)from potassium hydroxide and chlorine gas. Discuss its important properties and explain its uses in different industries.
CO3	K4	13a.	Analyze what are interhalogen compounds?Give examples. (OR)
CO3	K4	13b.	Compare clathrates of noble gases with their respective free gases. How does the encapsulation of noble gases in clathrates affect their physical and chemical properties? Discuss with specific examples
CO4	K4	14a.	Differentiate between Saytzeff's rule and Bredt's rule in terms of their application to elimination and rearrangement reactions. (OR)
CO4	K4	14b.	Illustrate the aromatic electrophilic substitution reaction of benzene. Give three examples.
CO5	K5	15a.	Evaluate the detailed mechanism of both Friedel-Crafts alkylation and acylation reactions.
CO5	K5	15b.	(OR) Critically assess the various orientation rules in electrophilic aromatic substitution reactions. with suitable examples.

Course Outcome	Bloom's K-level	Q. No.	$\frac{\text{SECTION} - C \text{ (5 X 8 = 40 Marks)}}{\text{Answer } \underline{\text{ALL }} \text{Questions choosing either (a) or (b)}}$
CO1	К3	16a.	Apply the concept of solubility product (KspK_{sp}Ksp) to explain how the formation of a precipitate can be predicted in a solution. Discuss its applications in qualitative analysis. (OR)
CO1	КЗ	16b.	What is meant by degree of hydrolysis? How would you determine the degree of hydrolysis of aniline hydrochloride?
CO2	K4	17a.	Analyze the structure of diborane with respect to its bonding. (OR)
CO2	K4	17b.	Compare the physical and chemical properties of carbon and silicon.
CO3	K4	18a.	Analyze the preparation, properties, and structure of xenon fluorides and oxides: XeF ₆ , XeOF ₄ , and XeF ₄ .
CO3	K4	18b.	Compare the preparation methods, properties, and structure of hydrazine (N_2H_4) . How does its structure influence its chemical reactivity and its uses in industrial.
CO4	K5	19a.	(i) Evaluate the significance of Hoffmann's rule in elimination reactions (ii) Discuss the aromatic electrophilic substitution reaction. (OR)
CO4	K5	19b.	Assess the factors influencing 1,2 and 1,4 addition reactions of alkenes.
CO5	K5	20a.	Critically evaluate the structure of benzene. (OR)
CO5	K5	20b.	Analyze the application of Huckel's rule in determining the aromaticity of compounds. How does the ortho/para ratio influence the orientation of substituents in electrophilic aromatic substitution reactions.