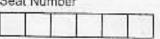
कणगा - 005





CHEMISTRY PAPER . I · CH

60

** 13			Physical and Inorganic Chemistry (113101)					
P. Pag	es:3	3	(113	101)				
Time :	Two	Ног	irs			Max. Marks :		
In	struc	tion	ns to Candidates :					
	1.	Do	not write anything on qu	estic	n paper except Seat N	Vo.		
	2.	Gr	aph or diagram should be ed for writing paper or bl	e dra	wn with the black ink	pen being		
	3.	Stu	udents should note, no si	upple	ment will be provided.			
	4.	All	questions are compulso	ry.				
	5,	Fig	jures to the right indicate	full	marks.			
	6.	Dra	aw a neat diagram where	ver r	iecessary.			
	1+	US	e of logarithmic table a	nd n	on programmable cal	culator is		
		ano	owed.					
1. a)	A++	o m r	t any ply of the fallowing					
1. 0/	MI	emp	ot any six of the following	9.				
Y	i)	In	Joule Thomson effect	there	is fall in temperatur	re of gas		
		OC	cur due to			No.		
		a)	zero work done	b)	work is done on the	gas		
		c)	work is done by the gas	(d)	Maximum work			
	ii)	Th	e ratio of molar gas cons	tant	to Avogadro's number	is		
		kn	own as					
			Boyle's point	b)	Critical constant			
44		c)	Compressibility factor	d)	Boltzmann constant			
	iii)	Ma	intissa is always					
12			Negative	b)	Positive			
E .		c)	Zero	d)	Exponential			
	iv)	Lia	uefication of gas depend	ls on				
		The second second	temperature of gas	b)	pressure of gas			
		c)	shape of container	d)	nature of gas	.+		
		A N	N 25 8 9			1		
	v)	In:	the following elements w	hich-	one is non-metallic ele	ement.		
		a)	Ge	b)	Si .	6.		
		c)	С	d)	Sn -	€.		

30	vi)	accordance with							
		a) increasing mass c) increasing atomic no.	b) d)	increasing atomic volume alphabetically					
	vii)	The geometry of H ₂ O molecule according to V.S.E.P.R. theory s							
		a) tetrahedral c) angular	b) d)	Pyramidal Planar triangle					
	viii)	The F-CI-F bond angle in C	F3 m	nolecule is					
	araws	a) 90°	b)	87.5°					
		c) 104.5°	d)	109.5°					
)	Ans	wer in one sentence any six	C.						
500	i)	Define compressibility facto	r.						
	ii)	Define Boyle temperature.							
	iii)	Define critical pressure of g	as.						
23	iv)	What is the integral of 10x2	dx.	0					
	v)	What is ionization energy o	fan	element.					
	vi)	Define atomic radius.							
	vii)	Define electron affinity of a	n ele	ement.					
	viii	Give uses of V.S.E.P.R. Th	eory						
		swer in two sentence each a		ix.					
	i)	State Joule Thomson effect	t.	- 20					
	ii)	Give the methods for liquifi	catio	on of gas.					
	iii)	Give any two assumptions	of ki	netic theory of gases.					
	iv)	Evaluate $\int 4x \cdot dx$							
	v)	Evaluate ∫ d logP							
	vi)	Why noble gases have zero	o ele	ctron affinity.					
	vii	What is screening effect.							

- viii) Explain assumptions of V.S.E.P.R. Theory.
- ix) If $y = x^5$ then find dy/dx.
- Attempt any four of the following.

12

- i) What are Vander Waal's constant ? Give their units.
- ii) Distinguish between ideal gas and real gas.
- iii) Explain volume correction in Vander Waal's equation.
- iv) Deduce Vander Waal's constant in terms of critical constant.
- v) Explain the variation of ionization energy in period.
- vi) Give the number of L.P. and B.P. present in XeF2 molecule.
- 4. Attempt any three of the following.

12

- i) Explain Claude's method with neat diagram.
- The dissociation constant of acetic acid is 1.75 x 10⁻⁵. Calculate pKa of acetic acid.
- iii) Calculate the critical constants for C₂H₂ using Vander Waal's constants a = 4.39 lit² atm mole⁻¹, and b = 0.05136 lit mol⁻¹.
- iv) Show that for real gas $\frac{R.Tc}{Pc.Vc} = \frac{8}{3}$
- v) On the basis of V.S.E.P.R. theory the expected shape of CIF3 molecule is t.b.p. but it is bent T-Shape. Explain.
- 5. Attempt any two of the following.

12

- i) Discuss Andrew's isotherms of CO2.
- ii) Explain various forms of equation of straight line in detail.
- Define lattice energy of ionic solid determined by Born-Haber cycle.

.......

3