April 2014 Seat

कड - 080

CHEMISTRY PAPER - I: CH - 121 Physical & Inorganic Chemistry (New) (12135)

P. Pages: 3

No.

Time: Two Hours

Max. Marks: 40

Instructions to Candidates:

- Do not write anything on question paper except Seat No. 1.
- Answersheet should be written with blue ink only. Graph or diagram should 2. be drawn with the same pen being used for writing paper or black HB pencil.
- Students should note, no supplement will be provided. 3.
- All questions are compulsory. 4.
- Figures to the right indicate full marks. 5.
- Draw a neat diagram wherever necessary. 6.
- Use of logarithmic table and non programmable calculator is allowed. 7.

1.	Attempt any eight of the following.					
	i)	According to kinetic theory of gases, there are a) intermolecular attractions b) molecules have considerable volumes c) no intermolecular attractions d) the velocity of molecules increases for each collision.				
	ji)	The unit of Van der Waal's constant a is				
	ili)	c) atm. L ² d) atm The rate of diffusion of a gas is				

wide range of pressure is called

critical temperature

reduced temperature

a)

C)

inversion temperature

boyle temperature

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b)

d)

V)	Stru	icture of NaCl is				
	a)	tetragonal	b)	face centred cubic		
	c)	orthorhombic	d)	monoclinic		
vi)	The number of atoms in b.c.c. unit cell are					
	a)	6		4		
	c)	2	*d)			
vii)	At the end of each period the valence shell is					
	a)	incomplete	b)	half filled		
	c)	singly occupied	d)	completely filled		
viii)	Down a group, the electron affinity					
,	a)	increases	b)	decreases		
	c)	remains same	d)	increases and then decreases		
ix)	The properties of elements in the periodic table depends on					
 in was	a)	atomic size	b)	atomic number		
	c)	mass number	d)	atomic weight		
x)	In a charcoal test, the mixture is prepared with					
	a)	NaCl	b)	NaHCO ₃		
	c)	Na ₂ CO ₃	d)	MnO ₂		
Ans	wer	any four of the following				
-i)	State faulty assumptions of kinetic theory of gases.					
ii)	Distinguish between ideal gas and real gas.					
iii)	Define Weiss indices.					
iv)	Explain centre of symmetry.					
v)	Explain zero electron affinity of noble gases.					
vi)	What are the group reagents of III A and III B groups?					
An	swer	any two of the following				
íì	Fx	plain Andrew's isotherm	s of CO _o	A STATE OF THE STA		

3.

- ii) Sketch (100) (110) (111) planes of simple cubic lattice. Calculate the interplanar distances.
- iii) Calculate the compressibility factor of 20 moles of methane which occupies 1.07 litre at pressure 600 atmosphere and temperature 25°C (R = 0.082 lit.atm.k⁻¹mol⁻¹)
- 4. Answer any two of the following.

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- i) Why atomic size of an element decreases in a period with increasing atomic number?
- ii) Explain the role of NH₄Cl in qualitative analysis.
- iii) Derive Van der Waal's equation of state.
- 5. a) Answer any one of the following.

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- i) Derive kinetic gas equation.
- ii) How the following factors affect the magnitude of ionisation energy of an element?
 - a) Size of atom.
 - b) Nuclear charge.
 - c) Screening effect.
- b) State the law of constancy of interfacial angle.

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