Lesson: 4 & 8 STD: XII ONE MARK TEST - 5 Marks: 30 / Time: 45 Min. CHEMISTRY Choose the correct answer. 1. Assertion: Ce<sup>4+</sup> is used as an oxidizing agent in volumetric analysis. Reason: Ce<sup>4+</sup> has the tendency of attaining +3 oxidation state. a) Both assertion and reason are true and reason is the correct explanation of assertion. b) Both assertion and reason are true but reason is not the correct explanation of assertion. c) Assertion is true but reason is false. d) Both assertion and reason are false 2. Which transition element is used in light bulb filaments? b) Ni d) Fe 3. Which one of the following is more basic in nature? b) Ce(OII)3 c) Gd(OH)3 d) Lu(OH)3 a) La(OH)<sub>3</sub> 4. Which of the following transition metal is present in Vitamin B<sub>12</sub>? b) Platinum c) Copper a) Cobalt d) Iron 5. Sc (Z=21) is a transition element but Zinc (z=30) is not because a) both Sc3+ and Zn2+ ions are colourless and form white compounds b) in case of Sc, 3d orbital are partially filled but in Zn these are completely filled c) last electron as assumed to be added to 4s level in case of zinc d) both Sc and Zn do not exhibit variable oxidation states 6. The actinoid elements which show the highest oxidation state of +7 are a) Np, Pu, Am b) U, Fm, Th c) U, Th, Md d) Es, No, Lr 7. How many moles of I2 are liberated when 1 mole of potassium dichromate react with potassium iodide? b) 2 c) 3 d) 4 8. Which one of the following elements show high positive electrode potential? b) Mn<sup>2+</sup> c) Co<sup>2+</sup> 9. Among the transition metals of 3d series, the one that has highest negative  $(M^{2+}/M)$  standard electrode potential is a) Ti b) Cu c) Mn d) Zn 10. Which of the following pair has maximum number of unpaired electrons? a)  $Mn^{2+}$ ,  $Fe^{3+}$ b) Co<sup>3+</sup>, Fe<sup>2+</sup> c) Cr<sup>3+</sup>, Mn<sup>4+</sup> 11. Which of the following lanthanoids have half-filled 4f orbital? a) Gd b) Tb c) Lu d) La 12. Which one of the following statements related to lanthanons is incorrect? a) Europium shows +2 oxidation state b) The basicity decreases as the ionic radius decreases from Pr to Lu c) All the lanthanons are much more reactive than aluminium d) Ce<sup>4+</sup> solutions are widely used as oxidising agents in volumetric analysis 13. The correct order of increasing oxidizing power in the series a)  $VO_2^+ < Cr_2O_7^{2-} < MnO_4^{-1}$ b)  $Cr_2 O_7^{2-} < VO_2^+ < MnO_4^$ c)  $Cr_2O_7^{2-} < MnO_4^{-} < VO_2^{+}$ d)  $MnO_4^- < Cr_2 O_7^{2-} < VO_2^+$ 14. Which reagent is used in the conversion of ethylene into ethylene glycol? a) Chromyl chloride b) Zeigler - Natta catalyst c) Cold dilute alkaline KMnO<sub>4</sub> d) Acidified K<sub>4</sub>Cr<sub>2</sub>O<sub>7</sub> 15. Which of the following statements is not true? a) on passing  $H_2S$ , through acidified  $K_2Cr_2O_7$  solution, a milky colour is observed b) Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> is preferred over K<sub>2</sub> Cr<sub>2</sub> O<sub>7</sub> in volumetric analysis c) K<sub>2</sub> Cr<sub>2</sub> O<sub>7</sub> solution in acidic medium is orange in colour d)  $K_2$   $Cr_2$   $O_7$  solution becomes yellow on increasing the  $P^H$  beyond 7

A conjugate acid-base pair differs only by		
	c) a hydroxyl id	on d) none of the above
7 1		
		d) SiF4
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	c) 0 111	d) none of these
	0) 0.111	d) hone of these
,	c) SE4	d) CaO
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iii. 75 mL $\frac{M}{5}$ HCl + 25mL $\frac{M}{5}$ NaOH	iv. $100 \text{ mL} \frac{M}{}$	$+CI + 100 \text{ mL} \frac{M}{10} \text{ NaOH}$
3	10	10
		45 111
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2) 1 8 v 10 <sup>-19</sup> b) 5 55 - 10 <sup>-10</sup>		
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of Ag <sub>2</sub> C <sub>2</sub> O <sub>4</sub> is  a) 2.42 × 10 <sup>-8</sup> mol <sup>3</sup> L <sup>-3</sup> c) 4.5 × 10 <sup>-11</sup> × mol <sup>3</sup> L <sup>-3</sup> In which of the following cases, the sparingly so a) Ionic product > solubility product (Ksp)  b) Ionic product < solubility product (KcD)  c) Ionic product = solubility product (KcD)  d) Both (a) and (b)  The relationship between the solubility product a) S <sup>2</sup> b) 4S <sup>3</sup> MY and NY <sub>3</sub> , are insoluble salts and have the sa statement would be true with regard to MY and a) The salts MY and NY <sub>3</sub> are more soluble in b) The addition of the salt of KY to the suspensolubility's  c) The molar solubilities of MY and NY <sub>3</sub> in w d) The molar solubility of MY in water is less If the hydrogen ion concentration of the solution a) 10 <sup>-5</sup> M  b) 10 <sup>-9</sup> M  The pH of 10 <sup>-5</sup> M KOH solution will be	b) 2.66 × 10 <sup>-12</sup> d) 5.619 × 10 <sup>-1</sup> cluble salt solution is  and molar solubility c) 108S <sup>5</sup> ame K <sub>sp</sub> values of 6. NY <sub>3</sub> ? 0.5M KY than in pure sidentical than that of NY <sub>3</sub> is 10 <sup>-5</sup> M, its hydroc) 10 <sup>-14</sup> M c) 19	mol <sup>3</sup> L <sup>-3</sup> <sup>2</sup> mol <sup>3</sup> L <sup>-3</sup> s unsaturated?  y of Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> is d) 27S <sup>5</sup> 2 x 10 <sup>-13</sup> at room temperature. Which  are water Y <sub>3</sub> will have no effect on their  xyl ion concentration is d) 10 <sup>-7</sup> M
	a) BF <sub>3</sub> b) PF <sub>3</sub> The relationship between the solubility product a) $K_{sp} = S^3$ b) $K_{sp} = S^2$ Equal volumes of three acid solutions of p11 1,2 concentration in the mixture?  a) $3.7 \times 10^{-2}$ b) $10^{-6}$ Which among the following is a Lewis base?  a) BF <sub>3</sub> b) SO <sub>3</sub> Following solutions were prepared by mixing di i. $60 \text{ mL} \frac{M}{10} \text{ HCl} + 40 \text{mL} \frac{M}{10} \text{ NaOH}$ iii. $75 \text{ mL} \frac{M}{5} \text{ HCl} + 25 \text{mL} \frac{M}{5} \text{ NaOH}$ pH of which one of them will be equal to 1?  a) iv b) i  Dissociation constant of NH <sub>4</sub> OH is $1.8 \times 10^{-5}$ the a) $1.8 \times 10^{-19}$ b) $5.55 \times 10^{-10}$ According to Arrhenius concept, an acid and a 1 a) hydrogen ion donor & hydroxyl ion donor b) hydrogen ion acceptor & hydroxyl ion donor d) electron donor & electron acceptor	Which of the following fluro compounds is most likely to behave as a) BF <sub>3</sub> b) PF <sub>3</sub> c) CF <sub>4</sub> The relationship between the solubility product (Ksp) and molar so a) $K_{sp} = S^3$ b) $K_{sp} = S^2$ c) $K_{sp} = 4S^3$ Equal volumes of three acid solutions of pH 1,2 and 3 are mixed in concentration in the mixture?  a) $3.7 \times 10^{-2}$ b) $10^{-6}$ c) $0.111$ Which among the following is a Lewis base?  a) BF <sub>3</sub> b) SO <sub>3</sub> c) SF <sub>4</sub> Following solutions were prepared by mixing different volumes of i. $60 \text{ mL} \frac{M}{10} \text{ HCl} + 40 \text{ mL} \frac{M}{10} \text{ NaOH}$ ii. $55 \text{ mL} \frac{M}{10} \text{ HCl}$ iii. $75 \text{ mL} \frac{M}{5} \text{ HCl} + 25 \text{ mL} \frac{M}{5} \text{ NaOH}$ iv. $100 \text{ mL} \frac{M}{10} \text{ HCl}$ pH of which one of them will be equal to 1?  a) iv b) i c) ii  Dissociation constant of NH <sub>4</sub> OH is $1.8 \times 10^{-5}$ the hydrolysis constant a) $1.8 \times 10^{-19}$ b) $5.55 \times 10^{-10}$ c) $5.55 \times 10^{-5}$ According to Arrhenius concept, an acid and a base respectively a) hydrogen ion acceptor & hydrogen ion donor b) hydrogen ion acceptor & hydrogen ion donor c) hydroxyl ion donor & hydroxyl ion donor

## one Mark-5

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		the conject explanation of	23	αj	hydrogen ion donor
	,	valuation.			a hydroxyl ion donor
a) 3]		W Lo caux	24	41	5-619 x 10 mol 3 L-3
			1 1	1	·
4)	aj	Cobalt	527	p)	Jonic Paloductz
5]	PI	in case of SC, 3d or bital			Solubility peraducticspo
_		are particuly filled but	36]	ပျ	10882
7.1		zn these are completely fille	27J	dl	The molar solubility
6]	al	NP, PU, AM	U		of my in water is
4]	cJ	3 Dada			less than that of NY3
8]	b)	Mn2+ GUGS	0.01		
٩]	aj		28]	aj	10 M
[0]	aj	Mn2+, Fe3+	29,1	aj	9
n)	aj	Gd	30)	8	bosic
12	c)	All the Lanthanons are much			
		more deactive than alumin;um			
13)	aj	VO2+ < C72072- < MNOH			
14)	cJ				
15]	b)	Nazczzoz is preferiéd over			
		K2 Cv2 07 volumetric analysis			
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18)	cJ			P. G	. Asst. In Chemic Hr Sec School
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