Al al-Bayt University



Chem 101; 2nd Exam

S. No.:

Exam consists of 16 questions (25 points total) Answer all questions Time allowed is one hour only

Answer Form

Question N	lo.	Answer
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
Total Score	/25	

Name:

1. The number of d	lots in the Lewis dot str	ructure for nitrogen (N) is				
a. three	b. two	e. five					
2. The number of v	valence electrons in SO	3 is					
a. 23	b. 26	c. 28	d. 24	e. 30			
3. Which of the foldiatomic species?	llowing are predicted b	by the molecular orbita	l model to be unstable	e (does not exist)			
a. Ne ₂ ²⁺	b. C ₂	c. Li ₂	d. Li ₂ ²⁺	e. F ₂ ⁺			
4. What is the best	description of the shap	e (geometry) of the K	rF ₄				
a. T-shaped	b. see-saw	b. see-saw c. trigonal bipyramide d. tetrahedral					
5. According to the	e VSEPR theory, which	n of the following shou	ld <u>not b</u> e linear?				
a) BeH ₂	b) SO ₂	c) CS ₂	d) NNO	e) ICl			
6. Which of the fol	lowing molecules is no	on-polar					
a. NH ₃	b. ICl_2^-	c. HCN	d. a + b	e. a + c			
7. Calculate the co	ncentration (M) of Al ³⁺	ion in 4.0 x 10^{-2} M A	$l_2(SO_4)_3$				
a. 4.0 x 10 ⁻²	b. 0.012	c. $8.0 \ge 10^{-2}$	d. 7.5 x 10 ⁻³	e. 0.020			
8. Electronegativity	y decreases along the p	eriodic table					
a. from bottom to t b. from bottom to t c. from top to botto d. from top to botto e. cannot be predic	op and from right to le op and from left to right om and from right to les om and from left to right ted	ft nt ft nt.					
9. Which of the fol	lowing should <u>not</u> have	e a dipole moment?					

a) NNO b) SF_4 c) BrF_3 d) XeF_2 e) all should l
--

10. Which of the following is <u>not</u> isoelectronic with Ar?

a) S ⁻	b) Cl⁻	c) K ⁺	d) Ca ²⁺	e) K^+ and Ca^{2+}						
11. Equal numbers of	f electrons in bonding	and antibonding molec	ular orbitals yield a bo	nd order of:						
a) 0	b) 1/2	c) 1	d) 3/2	e) 3/5						
12. The hybridization	of the oxygen atom in	water is closest to:								
a) sp	b) sp ²	c) sp ³	d) $sp^{3}d$	e) sp^3d^2						
13. Which of the foll	owing molecules is not	planar								
a. BCl ₃	b. NH ₃	c. CO ₃ ^{2–}	d. NO ₃ ⁻	e. SO ₃						
14. Using the molec length is:	ular orbital model, the	e molecule $(O_2^+, O_2,$	O_2^- , O_2^{2-}) with the s	smallest bond						
a. O ₂ ⁺	b. O ₂	c. O ₂ ⁻	d. O ₂ ^{2–}							
15. Predict the formu	la of the ionic compour	nd formed by magnesit	um (Mg) and fluoride (F)						
a. Mg ₂ F ₃	b. MgF	c. MgF ₂	d. Mg ₂ F	e. MgF ₃						
16. The expected hyb	bridization of the centra	l atom (I) for the ICl_4^-	is							
a. sp ³	b. sp ²	c. sp^3d^2	d. sp ³ d	e. sp						
Periodic Table of the Elements ¹⁸										
	H 2	13 1	(4 15 16 17 <mark>He</mark>							
	3 4 Li Be	Group 8	G 7 8 9 10 C N O F Ne ungu ungu ungu ungu ungu ungu ungu ungu							

	3	4											- 1	6	7	8	9	10
	Li	Be							roue				в	С	N	•	F	Ne
	11	17							roup				13	14	15	18	17	18
	Ma	Ma							_^_									
	ING.	щg	3	4	5	6	7	8	2	10	11	12	AI Saa	긴	<u>ب</u>	2	<u>.</u>	Al
	19	20	- 21	- 22	23	Z4	25	26	27	23	29	30	31	32	33	34	36	38
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Gu	Zn	Gar	Ge	As	Se	Br	Kr
	10000	Calue -	24041	- Years		0	Manager 1	b .	22	R-Lai	3444	lan.	:44		A and	31001	P	14
	37	38	38	40	41	42	43	44	46	46	47	48	48	- 60	61	62	63	54
	Rb	Sr	- Y .	Zr	NÞ	Mo.	TC	Ru	Rh	Pd	Ag	Cd	l In	Sn	Sb	Te		Xe
											-							
	66	- 646	67	72	73	74	76	76	π	78	79	80	81	82	83	84	BР	86
	Cs	Ba	La	<u>H</u> r	Ta	M.	Re	05	Ir	Pt	Au	Hg	I.T.	Pb	BI	Po	At	Rn
	87	38	39	104	105											· · ·		
	L De l	Da.	arl															
		min																
	•																	
				53	59	60	61	62	63	64	65	66	67	68	69	70	71	
La	ntha	nido		Ce	Pr	Nd	Pm	Sm	Εu	Gd	Tb	Dv.	Ha	Er	Tm	YЪ	Lu	
La		mae	÷.		-			-		-								
		_1	- \	90	- 91	92	93	94	- 95	96	97	98	99	100	101	102	103	
	ACT	niae	5] Th	Ра	U	Np	Pu	Am	¢m	Bk	Cr	Es	Fm	Md	No	Lr	
				1 Marcol	Table 1 and		n	C almost	A 8941	< 	-	244.441	-	1-01		n.Ma		

3