	九十三學年度	他一笔里。	条	(所)		2	!	組碩士班入	學考試	
科目_	H H			-alas	頁第_		頁	*請在試卷	【答案卷】	內作答
N	MULTIPLE CHOICE.	Choose the one alternati	ve that best	complet	es the s	tatement	tora	inswers the qu	estion.	
	35.9675 (0.337	element is found to have 7%), 37.9627 (0.063%), and								
	A) Ca									
	B) K									
	C) CI									
	D) Ar									
	2) The combusti	on of carbon disulfide in	the presenc	e of exces	s oxyge	n yields	carb	on dioxide and	l sulfur dioxi	de:
	CS ₂	$(g) + 3O_2(g) \rightarrow CO_2(g)$) + 2SO ₂ (g	ξ)						
	The combusti	on of 15 g of CS2 in the p						g of SO2.		
	A) 6.3	B) 13	С) 6.5 x 10 ⁴	2	D) 2	5			
	The compour	nd NH4Cl is a								
	A) strong b									
	B) weak ba									
	C) strong a									
	D) weak ac	id								
	4) Sodium does	not occur in nature as N	a (s) because	2						
		ly reduced to Na=								
		ly replaced by silver in its								
		with water with great dit	ficulty							
	D) it is easi	ly oxidized to Na ⁺								
	5) ΔH for the re	action								
	IF ₅ ($(g) \rightarrow 1F_3(g) + F_2(g)$								
	isk	J, give the data below.								
	IF (g	$(g) + F_2(g) \rightarrow IF_3(g)$	$\Delta H = -390$	0 kJ						
	IF (g	$(5) + 2 F_2(g) \rightarrow 1F_5(g)$	$\Delta H = -745$	5 kJ						
	A) +1135	B) +35	(C) +355		D) -	-113	5		

	九十三學年度	的更系统工程	_系(所)	2 組碩士班入	學考試		
科目	水黑		共頁第	> 頁 *請在試卷	【答案卷】內作答		
	,	,					
	The energy of a photo	n that has a wavelength o	of 9.0 m is	J.			
	A) 4.5 x 10 ²⁵	B) 2.2 x 10 ⁻²⁶	C) 6.0 x 10 ⁻²³	D) 4.5 x 10 ⁻²⁵			
	7) In the Bohr model of t						
	 A) electron energies 						
	B) electrons can hav		14-1-				
		n circular paths called or					
	D) electron paths ar	e controlled by probabilit	у				
	8) The quan	tum number defines the	shape of an orbital.				
	A) azimuthal	B) psi	C) spin	D) principal			
	9) Thesubs	hell contains only one orb	oital.				
	A) 4s	B) 3d	C) 1p	D) 6f			
	10) How many quantum	numbers are necessary to	o designate a particu	lar orbital in an atom?			
	A) 4	B) 5	C) 3	D) 2			
	11) Which ion in the isoe	electronic series below ha	s the smallest radius	in a crystal?			
	A) Al ³⁺	B) Na+	C) F-	D) N ³ -			
	12) The list that correctly	y indicates the order of m	etallic character is				
	A) $F > Cl > S$						
	B) $P > N > O$						
	C) P > S > Se						
	D) Na > K > Rb						
	13) Which alkali metal :	reacts with oxygen to fort	n the oxide, M2O?				
	A) Li	B) Cs	C) Rb	D) Na			
	14) Oxides of most nonmetals combine with water to form						
	A) hydrogen gas						
	B) a base						
	C) water						
	D) an acid						
	15) Of the following ch	nemical forms,	_are not commonly	found in ceramics.			
- North Anna	A) nitrates	B) silicates	C) aluminates	D) oxides			
	16) Which one of the f	ollowing substances is m		in benzene (C ₆ H ₆)?			
	A) CCI4	B) CH ₃ CH ₂ OH	C) HBr	D) NH ₃			

	九十三學年度	前軍系統2本	魚魚(所)_	2 组硕士	班入學考試
科目	任局			第 頁 *請在	試卷【答案卷】內作答
	*				
	17) The phenomenon w	sed to differentiate col	loids and true solution	ons is called the	effect.
	A) Osmotic	B) Tyndall	C) Henry	D) van't Hoff	
	18) The reaction below	is first order in [H2O2	<u>:</u>]:		
	2H ₂ O ₂ (l)	→ 2H ₂ O (l) + O ₂ (g))		
		y at 0.600 M H ₂ O ₂ is f	found to be 0.075 M a	fter 54 min. The half-life	for this reaction is
	A) 18	B) 28	C) 54	D) 6.8	
	19) Consider the follow	ing equilibrium.			
	2 SO ₂ (g) +	O ₂ (g) == 2 SO ₃ (g)		
	-	nnot be established wh g) and 0.25 mol O ₂ (g)		e placed ina 1.0-L contair	er.
	B) 0.75 mol SO ₂ (
		o. and 0.50 mol SO3 (g)	1		
	D) 1.0 mol SO ₃ (g				
	•				
	Of the following, w			O) 11	
	A) HF	B) HClO	C) HCI	D) HI	
	21) The standard cell p	otential (E*cell) for the	reaction below is +0	.63 V. The cell potential fo	or this reaction is
	V when	$1 (Zn^{2+}) = 1.0 M \text{ and } $	$[Pb^{2+}] = 2.0 \times 10^{-4} \text{ M}$	ſ.	
	Pb ²⁺ (aq)	+ Zn (s) → Zn ²⁺ (aq) + Pb (s)		
	A) 0.52	B) 0.74	C) 0.85	D) 0.63	
	22) The octane number	of straight-run gasol	ine is about		
	A) 50	B) 75	C) 93	D) 0	
	23) How many hydrox	yl groups are in a gly	cerol molecule?		
	A) 0	B) 1	C) 2	D) 3	

24) The compound below is a(n) ______.

- A) amine
- B) carboxylic acid
- C) aldehyde
- D) ester
- 25) How many isomers of C2H2Cl2 are polar?
 - A) none
 - B) 1
 - C) 2
 - D) 3