

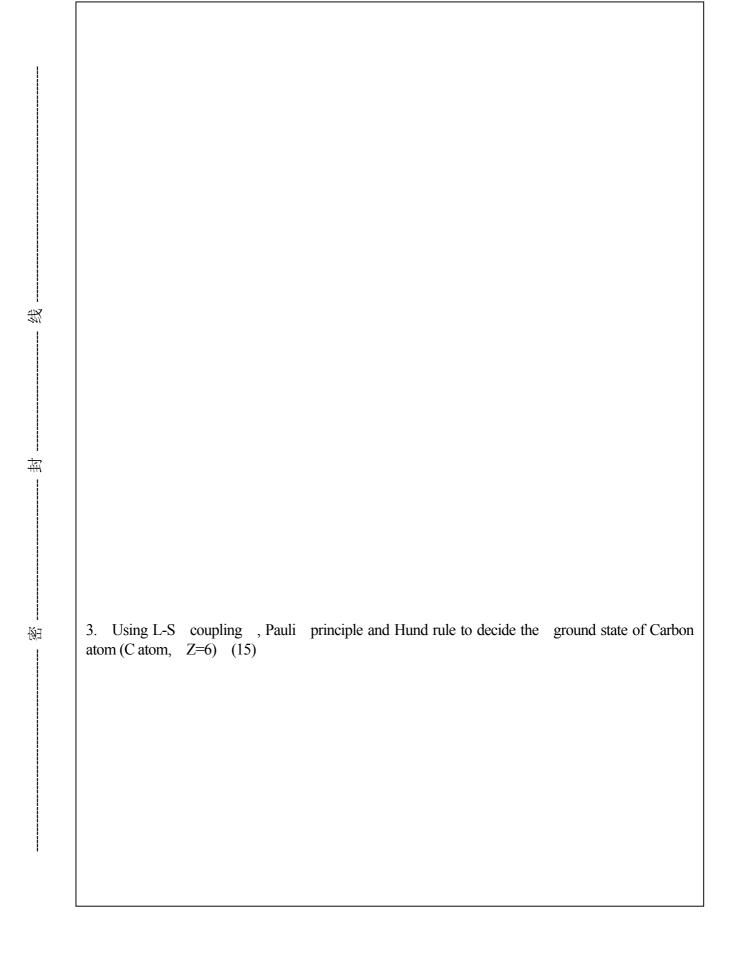
	得分	评阅人	二、填空题:(5题,共20分,每题4分)					
	The longest wavelength photon emitted in the Balmer series (n=2) isthis wavelength fall in the visible spectrum							
2	The hypothesizes in Bohr's theory are							
	An object from outer space moves past the Earth at 0.8c. You measure the length of the object as 3.3m in the							
4	Earth's frame, its length In the object's rest frame is The L absorption edge of a neodymium atom(z=60)is 0.19nm.the work required to ionize a K electron from the neodymium atom is							
5	5 The ground state of Al atom is $\frac{{}^{2} \mathcal{P}_{1}}{2}$, its total angular momentum is,							
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	Γ							
	得分	评阅人	三、简答题: (4 题, 共 24 分, 每题 6 分)					
			、间音越: (4 越,					
1、V	L Vhatare t	l he maximum	l electrons number allowed for the following quantum numbers ?					
$(1) n_{x} _{x} m $ (2) $n_{x} _{x} (3) n_{x}$								
2	What's the c	content of Paul	i Exclusion Principe.					
2. What's the content of Pauli Exclusion Principe.								

	(学 1 五(士 - 五)
3 bi	The following experiments were significant in the development of atomic physics. Choose two , in each case riefly describe the experiment and summarize what it contributed to the development of the theory. (a) Stern-Gerlach experiment (b) Compton Scattering (c) Franck-Hertz Experiment
4	Give a brief introduction of the interactions between photons and matter.
	得分 评阅人 四、计算与综合题: (共40分)

1 A beam of monochromatic light with a wavelength of 5.4A is incident upon a set of crystal planes, at an angle of $90^{\circ}0$ with respect to the incident beam, a maximum second-order diffraction is observed, what is the distance of the crystal planes (10)

2 In compton scattering, an incident photon with wave length l is scattered by a static electron with mass m, if l', E' represent the wave length and energy of the scattered photon with scattering angle Θ . (1) Derive the expressions for l' and E';

(2) Derive the kinetic energy of the recoiling electron (15)



普朗克常数	h=6.626×10 ⁻³⁴ 焦耳・秒	真空介电常数	ε ₀ =8.85×10 ⁻¹² 安•秒•伏 ^{-1·} 米 ⁻¹
基本电荷	$e=1.602 \times 10^{-19}$	玻尔磁子	u _b =0.927×10 ⁻²³ 安・米 ²
光速	c=3×10 ⁸ 米/秒	玻尔兹曼常数	k=1.38×10- ²³ 焦耳•开 ⁻¹
里德伯常数	R_{∞} =1.097×10 ⁷ $\%$ ⁻¹	质子质量	mp=1.67×10 ⁻²⁷ 千克=938兆电子伏/c ²