2. The energy levels of a multi electron atom depend upon

(a) n

(b) l

(c) Both n and l

(d) Neither n nor l.

3. Lande's splitting factor g for s electron is

(a) 0 (b) $\frac{1}{2}$

(c) 1 (d) 2.

4. Let A_{21} and B_{21} be Einstein's coefficients then the field density u_ν is given by

(a) $\frac{A_{21}/B_{21}}{e^{h\nu/kT}-1}$

(b) $\frac{A_{21}/B_{21}}{e^{h\nu/kT}+1}$

(c) $\frac{B_{21}/A_{21}}{e^{h\nu/kT}+1}$

(d) $\frac{B_{21}/A_{21}}{e^{h\nu/kT}-1}$

5. The annihilation operator for the state K is

(a) $a_K = \begin{bmatrix} 0 & 0 & 0 & 0 & \dots \\ \sqrt{1} & 0 & 0 & 0 & \dots \\ 0 & \sqrt{2} & 0 & 0 & \dots \\ 0 & 0 & \sqrt{3} & 0 & \dots \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \end{bmatrix}$

(b) $a_K = \begin{bmatrix} 0 & \sqrt{1} & 0 & 0 & \dots \\ 0 & 0 & \sqrt{2} & 0 & \dots \\ 0 & 0 & 0 & \sqrt{3} & \dots \\ 0 & 0 & 0 & 0 & \dots \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \end{bmatrix}$

(c) $a_K = \begin{bmatrix} \sqrt{1} & 0 & 0 & 0 & \dots \\ 0 & \sqrt{2} & 0 & 0 & \dots \\ 0 & 0 & \sqrt{3} & 0 & \dots \\ 0 & 0 & 0 & 0 & \dots \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \end{bmatrix}$

(d) $a_K = \begin{bmatrix} 0 & 0 & 0 & 0 & \dots \\ 0 & \sqrt{1} & 0 & 0 & \dots \\ 0 & 0 & \sqrt{2} & 0 & \dots \\ 0 & 0 & 0 & \sqrt{3} & \dots \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \end{bmatrix}$