3. The method of partial waves is applicable to

(a) square well potential

(b) spherically symmetric potential

(c) screened potential

(d) screened coulomb potential.

4. By the method of partial waves, total cross–section is

(a) $\frac{4\pi}{k^2}\sum_l (2l+1)\sin^2\delta_l$

(b) $\frac{2\pi}{k^2}\sum_l (2l+1)\sin^2\delta_l$

(c) $\frac{4\pi}{k}\sum_l (2l+1)\sin^2\delta_l$

(d) $\frac{2\pi}{k}\sum_l (2l+1)\sin^2\delta_l$ .

5. In Thomas–Fermi model of the atom, the electrons are treated as a gas obeying

(a) Maxwell–Boltzmann statistics

(b) Bose–Einstein statistics

(c) Fermi–Dirac statistics

(d) None of the above.



6. The effect of exchange symmetry has b incorporated in

(a) Hartree–Fock method

(b) Hartree's self consistent field model

(c) Thomas–Fermi model

(d) None of the above.

7. It is found that the doublet separation in alkali spectra is directly proportional to

(a) $n$ (b) $n^3$

(c) $\frac{1}{n}$ (d) $\frac{1}{n^3}$.

8. In $j$–$j$ coupling, the most predominating factor is

(a) spin–spin correlation

(b) spin–orbit interaction

(c) the electrostatic energy

(d) none of the above.