

1. (a) this is a stationary point charge, (b) this is a superposition of two electric dipoles—note that electric fields add as vectors not scalars (c-d) if we are interested in the large-scale physics there is no electric field due to the atom.
2. (a) this is an isolated ideal magnetic dipole, (b) use the right hand rule and $B = (\mu_0/4\pi)qv \times \hat{r}/r^2$, (c) there is no field (d) it depends on how it is moving, but in general it will be complicated, but mostly the field will be close to 0 since there is no monopole or dipole present.
3. c
4. c
5. (a) true (b) since it orbits at uniform velocity the work is zero, since work is a form of energy, also $W = -\int_{\text{path}} F \cdot d\ell = -\int_{\text{path}} |F||d\ell| \cos(\pi/2) = 0$
6. f, see your textbook
7. d, make sure to answer in terms of a not in terms of [m]
8. a
9. b
10. $dF = dq v \times B$, and $dq = d(I\ell/v) = (I/v)d\ell$, so $dF = (I/v)d\ell v \times B = Id\ell \times B$. Take care with scalar and vector quantities here, and note that along $d\ell$, we have that I and v are constant.