Hints for peer questions

Question A Probability of finding electron in nucleus
What do they indicate with the sphere and the dumbbell?
 https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Map%3A_Organic_Chemistry_(Bruice)/01._Electronic_Structure_and_Bonding_(Acids_and_Bases)/1.05%3A_Atomic_Orbitals

Question E Uniformly magnetized bar magnet.
Draw the magnetic poles at the surface of the magnet σ=**M.n**.

Question B: Orbital moment of H-atom
The electron is in a 1s orbital. What is l for that orbital? So what is the angular momentum of that orbit?
https://en.wikipedia.org/wiki/Atomic_orbital

Question D: Hole in magnet
Draw the magnetic poles at the surface of the magnet σ=**M.n**.

Question C: H^+, H, H_2
- See question B.
- How big the moment of the nucleus compared to the electron
- What is the direction of the electron spins in the H_2 molecule?
- There is parahydrogen and orthohydrogen

Question F: Fe ionisation
What is the energy of the 3d and 4s electrons, AFTER you have assembled the atom using Hunds rule.

Question G: Mn-O-Mn
Chikazumi and Graham, chapter 7.1

Question H: Spin in cubic formation
https://en.wikipedia.org/wiki/Dipole#Field_of_a_static_magnetic_dipole

Question I: Energy of an anti-ferromagnet in a field
- E=-**m.B**

Question J:
https://www.quora.com/Why-is-manganese-not-ferromagnetic

Question K: Para-, Ferro-, Anti-Ferro-magnetic temperature dependence.
This question is wrong. It should have been:

A (purple)	: Para-,	Ferro-,	Anti-ferro
B (blue)	: Anti-ferro-,	Para-,	Ferromagnetic
C (green)	: Para-,	Anti-ferro,	Anti-ferro
D (orange)	: Ferro-,	Anti-ferro,	Para

- What is the susceptibility of a perfect permanent magnet (with a rectangular hysteresis loop)?
- Chikazumi and Graham, figure 5.1 and 7.7

Question L: Slater-Pauling curve
Chikazumi and Graham, page 177

Question M: Torque curve
- The energy is the negative of the integral of the torque curve (the area under the curve)
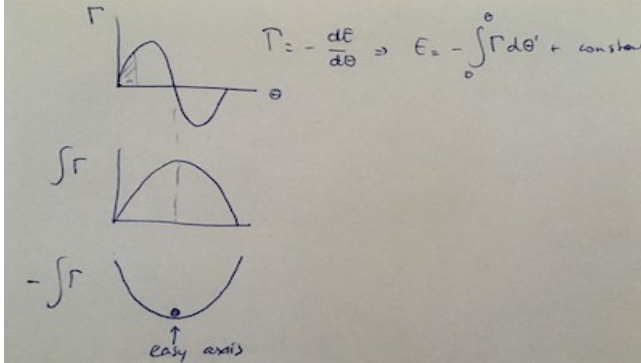
Question N: Stretched crystal, Ku1
- if you make b go to infinity, what is the easy axis of magnetisation?
- $\cos^2(0)=1$, $\cos^2(90)=0$

Question O: Sum of uni-axial anisotropies
- If A is correct, why is the vector tilted to right, why not to the left?
- $E=\cos^2(\theta+\phi_1)+\cos^2(\theta+\phi_2)$, what are phi1 and phi2?

Question P: Temperature dependence Ku1 and K1
Why is the temperature dependence of the anisotropy constant stronger than the temperature dependence of the saturation magnetisation?
Chikazumi and Graham, equation 12.74

Question Q: Stretched crystal, K1
- see question N
- if I rotate a square 90 degrees when you don't look, would you notice?