QUIZ on Lecture P1_Wk2_L2

1. One of the dominant contributions to the surface energy of a material is

a) The work required to create the surface
b) The rearrangement of atomic positions when the surface is created
c) The change in temperature when a new surface is created
d) The change in the optical reflectivity at the new surface

2. Materials with a high surface energy would typically have a surface energy of

a) about 1000 mJ/m^2
b) about 100 mJ/m^2
c) about 10 mJ/m^2
d) about 1 mJ/m^2

3. Two materials might adhere to each other because of

a) Mechanical interlocking
b) Hydrogen bonding
c) Dispersive interactions
d) Diffusive effects
e) All of the above

4. It is known that a small single crystalline cluster made of more than ~20,000 Ag atoms solidifies into an equilibrium structure known as the fcc truncated octahedron (see diagram). From the diagram, it should be evident that this structure develops different crystallographic facets. The surface energy for these different crystallographic facets will

a) have the same constant value for each face
b) primarily depend on the number of atoms/area that define each face
c) remain constant as the cluster size is decreased
d) not change as adsorbed gases adhere to the cluster