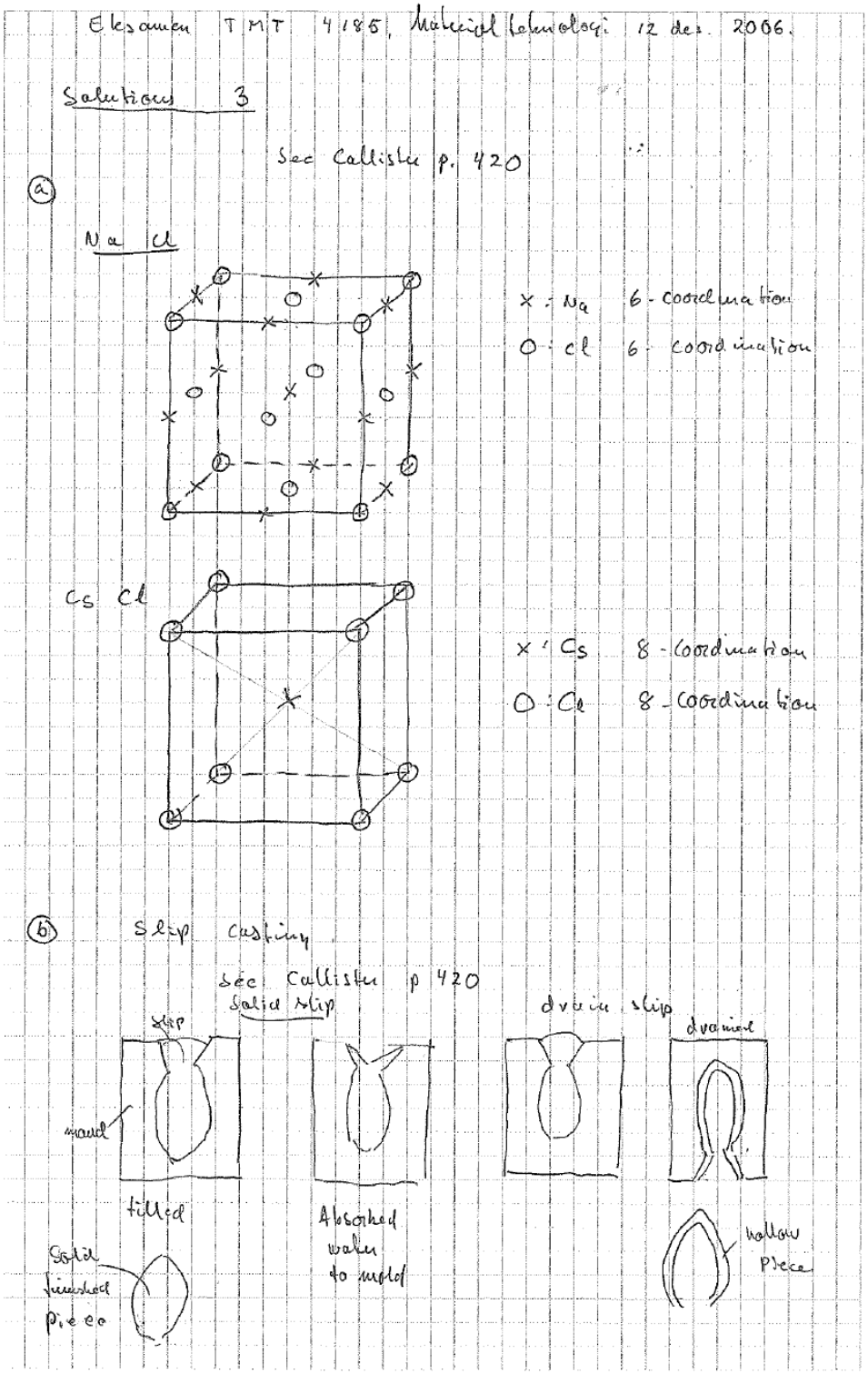
Øvingsoppgaver materialteknologi

Kapittel 12 & 13 Løsningsforsslag

a)



c) Frenkel defect: Cation leaving original position, moving into interstitial. No change in stoichiometry. Callister p. 434-436
Schottky defect: cation vacancy - anion vacancy pair. No change in stoichiometry
Single vacancy: Change in stoichiometry - change in valency
Single interstitial: Change in stoiciometry - change in valency

d) A glass ceramic is a fine-grained polycrystalline ceramic material which is formed as a glass and subsequently heat treated to crystallize. Callister p. 462, 476

e) Fracture strength is determined by materials flaws (cracks, inclusions etc) There is a higher probability that a large sample contains a flaw than a small sample.

f) Thermal tempering of glass is made by heating the glass above the glass transition but below the softening temperature and cooling to room temperature in a jet of air. Results in compressive stress in the surface. This stress prevents cracks from propagating.
See page 475 and fig 13.10 in Callister.