

MOL-7207 Functional materials
Examination 17.5.2011

NO LITERATURE Allowed

1. Explain shortly:
 - a) Aerogel
 - b) Superconductivity, the principle
 - c) Piezoelectric ceramics
 - d) Superhydrophilicity
 - e) Silver in antibacterial coatings
2. You are looking for material with good heat conductivity without electrical conductivity, what kind of material you will select at near room temperature use?
3. Customer needs material for high temperature electrical insulation use. What are the mechanisms for conductivity at high temperature and how they can be disabled by material selection? Does environment have any effect?
4. Polarization mechanisms?
5. Explain briefly the working principle of SOFC?
6. Applications of photocatalysts?