

國立臺灣科技大學

九十四學年度碩士在職專班招生考試試題

系所組別：材料科技研究所碩士在職專班

科目：材料科技實務

總分 100 分

Please explain the meanings of the following questions from 1 to 5 (50%):

1. Specific heat.
2. Light-emitting diodes (LEDs).
3. Screw dislocation.
4. Concentration gradient.
5. Intrinsic semiconductor.

6. Determine the number of atoms per unit cell in the cubic crystal systems which have simple cubic, body-centered cubic and face-centered cubic. If there is only one atom located at each lattice point, calculate the number of atoms per unit cell. (20%)

7. Translate the following paragraph into Chinese (30%):

Solids that exhibit considerable ionic bonding are also often mechanically strong because of the strength of the bonds. Electrical conductivity of ionically bonded solids is very limited. A large fraction of the electrical current is transferred via the movement of ions. Owing to their size, ions typically do not move as easily as electrons. However, in many technological applications we make use of the electrical conduction that can occur via movement of ions as a result of increased temperature, chemical potential gradient, or an electrochemical driving force.

