

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. What are the main differences between diffusion driven and diffusionless phase transformations? (10%)
2. What is fracture toughness (K_{Ic}) and how it depends on the elastic modulus (E) of the considered material? (10%)
3. Which one may expect faster diffusion in metals or in ceramics? Why? (10%)
4. Please provide definition of the Orthorhombic System and draw all known Bravais lattices for this system. (10%)
5. Why is graphite lubricating? (10%)
6. Why bulk metallic glasses (BMG) are generally multicomponent? (10%)
7. How does dislocation movement produce plastic deformation? (10%)
8. Why does a liquid metal solidify at constant temperature? (10%)
9. Why is strain hardening also called cold working? (10%)
10. Why is grey cast iron so brittle? Why is it resistant to wear? (10%)