

MSE 426
Heat Treatment of Materials
(2024-2025 SPRING)
Assignment 1

1- Which one of the following matches is not true?

- Sodium (Na) : metal
- concrete : composite
- Titanium carbide (TiC) : ceramic
- Epoxy : polymer
- Calcium (Ca) : ceramic

2- What is microstructure?

- Structure of a material that is seen by optical microscope
- Structure of a material that is seen by electron microscope
- Structure that includes proton, neutron and electrons
- Crystal structure of the atoms
- Structure of a material that is seen by naked eye

3- Which one of the following materials manufacturing processes changes the microstructure?

- Hot forging
- Extrusion
- Wire drawing
- Heat treatment
- All of them

4- Steel is defined as Fe-C alloy containing carbon

- higher than 2.1 wt.%
- lower than 2.1 wt.%
- between 0.1 and 0.6 wt.%
- between 2.1 and 4.5 wt. %
- none of them

5- Which one of the following is not mechanical property?

- Hardness (H)
- Fracture Toughness (K_{IC})
- Yield Strength (σ_y)
- Young Modulus (E)
- Index of refraction (n)

6- Which one of the following statements is not true about polymers?

- Thermoplastics can be softened or molten and reformed into new shape by reheating
- Thermosets cannot be softened or molten and reshaped
- Polymers cannot be used in composite production
- Polymers are organic compounds based on C, H and other nonmetallic elements
- Elastomers have an elastic deformation >200%

7- Plain carbon steels' hardness and brittleness increases by increasing the carbon content.....**T F**