

Multiple Choice Questions:

1. Diffusion can occur in _____ materials.
(a) Solid (b) Liquid (c) Gaseous (d) All
2. Probably the fastest diffusing species in Fe is
(a) H (b) Ni (c) W (d) C
3. The value of error function for ' ∞ ' is
(a) $-\infty$ (b) -1 (c) 1 (d) ∞
4. The value of error function for '0' is
(a) -1 (b) 0 (c) 1 (d) None
5. The units for diffusivity, D , are
(a) $\text{m}^2\text{sec}^{-1}$ (b) $\text{m}^2\text{sec}^{-1}$ (c) $\text{m}^{-2}\text{sec}^{-1}$ (d) $\text{m}^{-2}\text{sec}^{-1}$
6. The following mechanism contributes very little the diffusivity
(a) Vacancy (b) Interstitial (c) Substitutional (d) Self-interstitial
7. Not an example for short-circuit path
(a) Vacancy (b) Dislocations (c) Grain boundaries (d) External surfaces
8. Example for steady-state diffusion
(a) Hydrogen purification by palladium sheet
(b) Doping semi-conductors
(c) Corrosion resistance of duralumin
(d) Decarburization of steel
9. The most influencing factor of diffusivity
(a) Diffusing species (b) Temperature (c) Lattice structure (d) Presence of defects
10. The following phenomena are useful in zone-refining process
(a) Coring (b) Segregation (c) Both (d) None
11. Macro-segregation can be removed by
(a) Annealing (b) Hot working (c) Both (d) None
12. The following enhances the coring
(a) Minute difference between liquidus and solidus
(b) Marked difference between liquids and solids
(c) Either (d) None

Answers:

1. d
2. a
3. c
4. b
5. b
6. d
7. a
8. a
9. b
10. c
11. d
12. b