

## Metallurgical Engineering Physics of Metals Quiz Questions

1. Which of the following properties of metals cannot be explained by free electron theory of metals?
  - a. Thermal conductivity
  - b. Optical properties
  - c. Electrical conductivity
  - d. Specific heat

Ans: D

2. Self diffusion
  - a. Is the migration of atom in pure materials
  - b. Occurs in binary metal alloys
  - c. Involves atomic migration along grain boundaries
  - d. Involves atomic migration along the surface of a phase

Ans: A

3. Energy associated with an electron at absolute zero temperature (which is the maximum value for that electron) is called the \_\_\_\_ energy.
  - a. Ionisation
  - b. Fermi
  - c. Degenerate
  - d. Electron

Ans: B

4. Which of the following crystallises in bcc structure?
  - a. Chromium
  - b. Lead
  - c. Zinc
  - d. Aluminium

Ans: A

5. Substitutional diffusion becomes possible, if the

- a. Vacancies are present in a substitutional solid solution
- b. Solid solution temperature is very high
- c. Atoms are significantly different size
- d. Activation energy for vacancy formation is low

Ans: A

6. Photoelectric emission is the emission of electrons from a metallic surface, when it is struck by

- a. X-rays
- b. Photons
- c. Electrons
- d. None of these

Ans: B

7. \_\_\_\_\_ of an atom implies, its capability to attract electrons to itself.

- a. Electronegativity
- b. Electropositivity
- c. Oxidation number
- d. Electronic defect

Ans: A

8. Vander wall bond

- a. Is a primary bond
- b. Involves the transfer of electrons between the atoms
- c. Involves sharing of electrons between the atoms
- d. Is a weak bond

Ans : D

9. X-ray photons possess larger energy compared to the visible light photons because of its comparatively higher

- a. Wavelengths
- b. Frequency
- c. Velocity

d. Plank's constant

Ans: B

10. Electrons are assumed to move in a region of \_\_\_\_\_potential, as per zone theory.

a. Periodic

b. Very low

c. Constant

d. Very high

Ans: A

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