

Quiz for Video 14 – The Solid State

1. Which of the following best describes a crystalline solid?

- a) A solid with no definite shape or structure
- b) A solid that melts at an indefinite temperature
- c) A solid with a repeating, ordered arrangement of atoms or molecules
- d) A solid with randomly arranged particles

2. What is the basic repeating unit of a crystalline solid called?

- a) Unit cell
- b) Atom
- c) Molecule
- d) Lattice point

3. What is the coordination number of a simple cubic unit cell?

- a) 2
- b) 4
- c) 6
- d) 8

4. In a body-centered cubic (BCC) unit cell, how many atoms are present per unit cell?

- a) 1
- b) 2
- c) 3
- d) 4

5. What is the main characteristic of metallic solids?

- a) They are brittle and non-conductive
- b) They contain delocalized electrons that allow conductivity
- c) They consist of discrete molecules held by weak forces
- d) They have localized electrons in fixed positions

6. What is the edge length ratio in a simple cubic unit cell in terms of the atomic radius (r)?

- a) $2r$
- b) $2\sqrt{2}r$
- c) $3r$
- d) $4r$

7. What is the edge length ratio in a face-centered cubic (FCC) unit cell in terms of the atomic radius (r)?

- a) $2r$
- b) $2\sqrt{2}r$
- c) $3r$
- d) $4r$

8. A closer packing within the unit cell should suggest an increase in:

- a) Density
- b) Atoms per cell
- c) Mass per atom
- d) Volume