Universiti Malaysia PAHANG Engineering • Technology • Creativity	Faculty of Chemical & Natural Resources Engineering Universiti Malaysia Pahang BKC2463 SCIENCE & ENGINEERING MATERIAL **Exercise Chapter 3**

1. Describe and compare characteristics of a crystalline and non-crystalline materials.

2. A known metal was found to have a cubic structured unit cell, where one atom is associated with each lattice point. Using information below, determine crystal structure of the metal:

Density	: 1.892 g/cm^3
Lattice parameter	: 12
Atomic mass	: 132.91 g/mol
Lattice parameter	: 6.13 Å

3. Beryllium is a rare chemical element with hexagonal crystal structure. Given below are its atomic physical properties.

Atomic radius	: 0.1143 nm
Density	: 1.848 g/cm^3
Atomic mass	: 9.01 g/mol
a_o	: 0.22858
c_o	: 0.35842 nm

Based on the properties of beryllium given above, determine the number of atoms and the packing factor for the unit cell.