Selected Questions from Past Test

Multiple Choice
1. Which of the following bond types is characterized by shared electrons in the bond?
   (a) covalent           (b) metallic           (c) ionic           (d) van der Waals

2. Which of the following is not a point defect?
   (a) interstitial atom        (b) substitutional atom       (c) edge dislocation
   (d) none of these are point defects

3. Which of these does not affect diffusion for a case that is described by Fick’s first law?
   (a) temperature        (b) concentration      (c) number of vacancies     (d) time

4. A dislocation with a Burger’s vector that is perpendicular to the dislocation line is
   (a) an edge dislocation       (b) a screw dislocation     (c) a mixed dislocation
   (d) can be either a) or b)

Problems
1. Rhodium has an FCC crystal structure, an atomic radius of 0.1345 nm and an atomic weight of 102.9 g/mol. Calculate the density of rhodium.
   (a) 6.20 g/cm$^3$       (b) 9.30 g/cm$^3$       (c) 12.4 g/cm$^3$        (d) 24.8 g/cm$^3$

2. How many moles are there in 1 liter of water? Water has a density of 1 g/l.