

國立屏東科技大學 九十三年 學年度 碩士班 甄試招生考試
材料科學導論 試題

一、 Copper has an atomic radius of 0.128nm, an FCC crystal structure, and an atomic weight of 63.5 g/mol. Compute its density. ($N_A = 6.023 \times 10^{23}$)

二、 A non-homogeneous polymer system is composed according to the following fractional distribution

Wt. fraction	0.05	0.20	0.35	0.20	0.15	0.05
Mol. Wt. $\times 10^{-5}$	1	2	3	4	6	7

Compute M_n (the number average of molecular weight), M_w (the weight average of molecular weight), and M_w/M_n for this system.

三、 For linear-condensation system, calculate X_n (the number-average degree of polymerization) and X_w (the weight-average degree of polymerization) for an equimolar mixture of a diacid and a glycol at the following extents of reaction: 0.5, 0.99

四、 Determine the principal stresses for the state of stress

$$\begin{bmatrix} 0 & -240 & 0 \\ -240 & 200 & 0 \\ 0 & 0 & -280 \end{bmatrix}$$

五、 Explain the meanings of the continuous, homogeneous and isotropic body.