Assignment

1. Determine the specific heat of Titanium at 20 K, if the specific heat is given by Debye function.

2. For Diamond the specific gas constant is 693 J/kg-K. Determine the energy required to warm a diamond of mass 20gm from 100 K to 185 K.

3. Determine the specific heat of aluminum at 60 K. given that the atomic weight is 27g/mol.

- Please check the standard properties for answers.

Assignment

4. Determine the heat transferred in an Aluminum slab of uniform cross section area 10cm^2 and length of 0.5m, when the end faces are maintained at 250 K and 80 K respectively.

$$\theta_1 = \int_{4.2}^{250} k(T)dT = 51300 \qquad \theta_2 = \int_{4.2}^{80} k(T)dT = 16700$$

5. Calculate the overlap length of a brazed butt joint formed by Copper (L$_0$=0.6m) and SS (L$_0$=1.5m). It is desired that the minimum overlap should be greater than 4mm. The joint is subjected to a low temperature of 100 K. Use the standard data form previous lecture.