Week-04: Assignment-04

The due date for submitting this assignment has passed.

Due on 2021-09-01, 23:59 IST.

As per our records you have not submitted this assignment.

1) Calculate the number of broken bonds per unit area in a Nickel crystal on the (100) planes. *1 point*

- 3.22×10^{19}
- 1.55×10^{19}
- 7.55×10^{17}
- 4.8×10^{5}

No, the answer is incorrect.
Score: 0
Accepted Answers:
3.22×10^{19}

2) Calculate the number of atoms per unit area in an Iron crystal on the (111), planes. *1 point*

- 1.78×10^{19}
- 5.5×10^{10}
- 1.21×10^{19}
- 2.9×10^{9}

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.21×10^{19}

3) Heat capacity has units as *1 point*

- J/kg.K
- J/mol.K
- J.ohm/sec.K^2
- W/m.K

No, the answer is incorrect.
Score: 0
Accepted Answers:
J/mol.K

4) Miller indices for Octahedral plane in cubic crystal *1 point*

- (100)
- (110)
- (111)
- None

No, the answer is incorrect.
Score: 0
Accepted Answers:
(111)

5) Coordination number for closest packed crystal structure *1 point*

- 16
- 12
- 8
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
12

6) Determine the Miller indices of a plane that makes intercepts of 4Å, 3Å and 8Å on the coordinate axes of an orthorhombic lattice with the ratio of the axial lengths as: a : b : c = 2 : 3 : 1. *1 point*

- (452)
- (481)
- (220)
- (324)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(481)

7) For the following reaction at 25°C, $\Delta H^o = +115$ kJ and $\Delta S^o = +125$ J/K. Calculate ΔG^o for the reaction at 25°. $SBr_4(g) \rightarrow S(g) + 2Br_2(l)$. *1 point*

- +152 kJ
- -56.7 kJ
- +77.8 kJ
- +37.1 kJ

No, the answer is incorrect.
Score: 0
Accepted Answers:
+77.8 kJ

8) The entropy will usually increase when *1 point*

I. a molecule is broken into two or more smaller molecules.
II. a reaction occurs that results in an increase in the number of moles of gas.
III. a solid change to a liquid
IV. a liquid changes to a gas.

- I only
- II only
- III only
- I, II, III, and IV

No, the answer is incorrect.
Score: 0
Accepted Answers:
I, II, III, and IV

9) Which one of the following thermodynamic quantities is not a state function? *1 point*

- Gibbs free energy
- enthalpy
- entropy
- work

No, the answer is incorrect.
Score: 0
Accepted Answers:
work

10) Equilibrium melting temperature of a metal at 1 atm pressure is 400°C and the latent heat of melting at this temperature is 1000J/mole. Calculate the entropy of melting at 400° C. *1 point*

- 1.49 J/mol.K
- 2.0 J/mol.K
- 3.5 J/mol.K
- 2.2 J/mol.K

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.49 J/mol.K