

End Semester Examinations - 2015-16 Even Semester - May 2016

14PH2007 Heat and Thermodynamics

Set B

Time : 3 hrs
Total Marks: 100

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1. 1. State 4 different Laws of thermodynamics and explain them in detail(20 marks)
OR
 2. 2. Derive the general expression and six different relations for Maxwell thermodynamically relations
(20 marks)
 3. 3. Calculate the probability that in tossing a coin 15 times, we get (20 marks)

(i) 10heads &5 tails (ii). 7 heads and 8 tails (iii).3 heads and 12 tails iv).6 heads and 9 tails
OR
 4. 4. **Explain in detail about** Concept of a cell in a component (20 marks)
 5. 5. Explain in detail about different types of ensembles (20 marks)
OR
 6. 6 a). Calculate the Vander Waals constants for dry air, given that $T_c = 132\text{K}$, $P_c = 37.2$ atmospheres and R per mole $= 82.07 \text{ cm}^3 \text{ atmos K}^{-1}$ (10 marks)

b).Find the efficiency of the Carnot's engine working between the steam point and the ice point (10 marks)
 7. 7. Write in detail about Bose – Einstein Distribution Law
OR
 8. 8. Explain in detail about Planck's Radiation law
 9. Derive the expression for Vander – Waal's equation and their critical constants

Wishing you All the Best
