Thermodynamics 1 DEN107

Problem Set 01 (due week 3, Mon 2012jan23)

Insert the SEMS homework coverpage as 1st page; this question sheet with original signatures as the 2nd page; then attach your solutions in subsequent pages. Your solutions are due before 3.30 pm on Monday January 23rd 2012 in the cabinet outside the SEMS office.

By signing below I certify that I will not obtain the teaching assistant's (TA) signature for students other than myself, and that I will not forge the TA's signature on this page. Violators will be prosecuted in accordance to QMUL procedures. Please fill in the five items below.

Student Surname:	
Student Forenames:	
Student ID (9 digits):	
Student signature:	
TA confirms tutorial attendance (signature):	

50% of the assignment grade will be deducted if the TA signature above is missing

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Study chapters 1 and 2 from the course TEXTBOOK. The textbook is mentioned in the 2012 course summary AND in the 2012 course schedule. These documents are available in the SEMS DEN107 module webpages. The textbook is available for purchase from the bookstore, and several copies of it are available on reference and short-term loan in the Library.

Problem 1.
Give the formal definition of a thermodynamic system. Give one example each of the following systems, carefully and unambigously defined: a small system (molecular level); a biological open system; an electricity-producing powerplant defined as a closed system; an automotive shaft-power producing engine as an open system; and of a jet engine powering a flying military aircraft as a CLOSED system.

Problem 2)
Problem 2.3 from the textbook. Start by copying the problem statement in your solution sheets.

Problem 3
Problem 2.5 from the textbook. Start by copying the problem statement in your solution sheets.

Problem 4
Problem 2.1 from the textbook. Start by copying the problem statement in your solutions sheets.

HINT: Model summary answers are at the back of the textbook. You will be graded on providing full solutions, i.e. a full justification for several alternative answers, included but also expanding the ones included in the summary solutions. You will be penalized for simply copying the answers from the back of the book.