12/19 RV

Heskay

T = 310K
a = 8.31J
vf = 19
vi = 12

n = 1mole
n = nRT ln(vf/vi)
1x8.31x310 ln(12/19)
= 257.6 ln 0.631)
= 1184 J

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DEPARTMENT OF PHYSICS
2017/2018 RAIN SEMESTER TEST
PHY 206: THERMAL PHYSICS
TIME: 1 Hr 30 mins

ANSWER ANY ALL QUESTIONS

1(a) Define Thermodynamics

1(b) Using a diagram as an aid write a detailed note explaining the following terms (i) Thermodynamic systems, surroundings and Universe (ii) Types of Thermodynamic Systems.
1(c) Using examples write a detailed note explaining the following terms (i) Properties of a system (ii) Reversible process (iii) Irreversible process.

2 (a) Define the Zeroth Law of Thermodynamics and explain how this rule established the basis of the state variable called temperature.
2(b) Explain the following concepts (i) Energy (ii) Work (iii) Heat
2(c) If one mole of oxygen expands from 12 litres to 19 litres at a constant temperature of 310 K, obtain the value of the work done? Gas Constant R =8.31 J/mol.K.