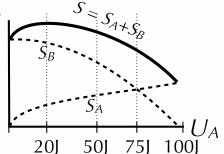
Physics 3410 Quiz 5

Please	write the let	ter of the cor	rect answer i	n the box prov	vided. Name:	
the to	•	$_{A}+U_{B}$ of both	,		on of the energy in A, where A and B are not the same!	$S = S_A + S_B$
1 1	1. How m A) 20J	_		t equilibriu D) 100J	ım, according to the	graph?
1 1			en energy ' B) from l		C) neither of these	$C_{A} = \frac{1}{20J} + \frac{1}{50J} + \frac{1}{75J} + \frac{1}{100J}$
1 1				,	old object, which obj C) both (i.e. S_{hot} an	ect gains entropy? d S _{cold} both increase)
	theorem.	How mar	ny degrees	of freedon	n per particle does it	eys the equipartition have?
	A) 1	B) 2	C) 3	D) 3.5	E) 7	•••••
	5. ∂S/∂V = A) P	= B) 1/P	C) 1/T	D) P/T		U ₁ A ₁
	_	•	nds. Whic	ch system g	volume of two syster gains more entropy in me entropy	

Physics 3410 Ouiz 5

Please write the letter of the correct answer in the box provided.	ne:
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The graph shows the entropy in systems A and B as a function of the energy in A, where the total energy U_A+U_B of both systems is 100J. Note that A and B are not the same! Refer to this graph for 1 and 2.



- 1. How much energy is in A at equilibrium, according to the graph?

- B) 50 | C) 75 | D) 100 |
- 2. If $dS/dU_A < 0$, then energy will flow
- A) from A into B B) from B into A C) neither of these
- 3. As heat flows from a hot object to a cold object, which object gains entropy?
 - A) the hot object
- B) the cold object C) both (i.e. Shot and Scold both increase)
- 4. A system of N particles has $\Omega = V^N U^{7N/2}$ microstates, and obeys the equipartition theorem. How many degrees of freedom per particle does it have?
 - A) 1
- B) 2
- **C**) 3
- D) 3.5
- E) 7

- 5. $\partial S/\partial V =$

- B) 1/P C) 1/T
- D) P/T
- 6. The graph shows how the energy and volume of two systems, A and B, change over 5 seconds. Which system gains more entropy in this time?
 - A) A
- B) B
- C) Both gain the same entropy