AST 192-401 **TEST 2** Mar. 19, 2008

**Name (printed): _____**

**Name (signature):_____**

Numbers and formulas that may be useful.

$g = 9.8\ m\ s^{-2}$

$G = 6.67 \times 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$

$h = 6.63 \times 10^{-34}\ J\ s$

$\sigma = 5.67 \times 10^{-8}\ W\ m^{-2}\ K^4$

$k_B = 1.38 \times 10^{-23}\ J\ K^{-1}$

$M_{Sun} = 2 \times 10^{30}\ kg$

$R_{Sun} = 6.96 \times 10^5\ km$

$L_{Sun} = 3.8 \times 10^{26}\ W$

$M_{Earth} = 5.97 \times 10^{24}\ kg$

$p^2 = 4\ \pi^2\ a^3 / [G\ (M_1 + M_2)]$

$\nu = c / \lambda$

$E \leq -(3/5)\ G\ M^2 / R$

Flux (emitted power per square meter) $= \sigma\ T^4$

$P = n\ k_B\ T$

$P\ V = N\ k_B\ T$

$\lambda_{max} = 2{,}900{,}000\ nm / T\ (Kelvin)$

$$M_{Jeans} = 18\, M_{Sun} \sqrt{T^3 / n}$$