Note to Instructors Regarding the Solutions Manual for
Physics of the Interstellar and Intergalactic Medium
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Unfortunately, the *Problems with Solutions* manual (Version 2011.01.17, available to instructors through Princeton University Press) contains some errors, identified below. (Typos in the problems themselves are also corrected from time-to-time, so the wording of the problems downloadable from this website[1] may differ slightly from the problem wording in the solutions manual).

Following are corrections needed to the solutions given in *Problems with Solutions* Version 2011.01.17:

- Problem 1.3: the numerical results given in the solution were computed for a larger value of $n_{\rm H}$ (= $0.33\,{\rm cm}^{-3}$), and a slightly smaller value of v_W ($24\,{\rm km\,s}^{-1}$). The numerical value given for $n_{\rm dust}$ in the manual should be *reduced* by a factor 1.52, and the numerical value given for A should be *increased* by a factor 1.39.

- Problem 2.1: owing to a change in notation that didn't get fully propagated to the answers, some of the "answers" given are nonsensical – the second occurence of α in the answers to (b), (c), and (e) should be replaced by m_e/m_p.

- Problem 3.1: replace $-4/n$ $\rightarrow$ $+6/n$

- Problem 5.3

  (a) In the given solution: replace $0.941 \rightarrow 0.975$ and $108.5 \rightarrow 112.4$

  (b) The question should read "... transitions in $^{13}{\rm C}^{16}{\rm O}$ and $^{12}{\rm C}^{17}{\rm O}$".

  (d) Line 1 of the given solution, on the LHS: change $13 \rightarrow 12$, and $12 \rightarrow 13$.
  Line 1 of the solution on the RHS: change $13 \rightarrow 12$, and $12 \rightarrow 13$, and change the sign.
  Line 2 of the given solution, change $[1.023-1] \rightarrow [1-0.978]$, and $35.5 \rightarrow 34.7$.

- Problem 8.1: The LHS of the final equation is correct, but the numerical values given on the RHS for the final fractional errors should be divided by 4.

- Problem 12.2: In the penultimate line, 5.1472 needs to be changed to 5.4172 in two places.
  In the last line, 2.49×10^{-4} should be 4.89×10^{-4}, and 8.11×10^{-4} should be 1.05×10^{-3}.

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[1] http://www.astro.princeton.edu/∼draine/book/problems.pdf

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- Problem 14.3: The solution manual used an incorrect value for $n_{e,\mathrm{crit}}$ [see also textbook errata for Eq. (14.11)]. Replace:
  $1880\,\mathrm{cm}^{-3} \rightarrow 1.55 \times 10^4\,\mathrm{cm}^{-3}$
  $8.30 \rightarrow 8.09$
  $9.45 \rightarrow 8.30$
  $11.4 \rightarrow 9.59$

- Problem 14.4: At the end of (a), change $\mathrm{cm}^3\,\mathrm{s}^{-1} \rightarrow \mathrm{s}^{-1}$.

- Problem 15.4:

  (a) Change $2.78 \rightarrow 4.01$.

  (b) Change $2.78 \rightarrow 4.01$ and $8.8 \times 10^5 \rightarrow 1.27 \times 10^6$.

  (c) Change $0.528 \rightarrow 0.368$.

- Problem 15.5(c): Change $0.357 \rightarrow 0.166$.

- Problem 16.5(a): Definition of β should be $\beta \equiv \zeta/n_{\mathrm{H}}\alpha$

- Problem 19.2: For consistency with the approximation given in the text for the partition function (Eq. 19.17), the denominator $(1 + kT_{\mathrm{exc}}/B_0) = (1 + T_{\mathrm{exc}}/2.766)$ should be replaced by $[1+(kT_{\mathrm{exc}}/B_0)^2]^{1/2} = [1+(T_{\mathrm{exc}}/2.766)^2]^{1/2}$ at various points in (a)-(c).
  In (b), the numerical coefficients 114 and 50 given in the solution manual are incorrect: they should be 145 and 64, respectively.
  In (c), the numerical coefficients 26 and 37 given in the solution manual are incorrect: they should be 28 and 40, respectively.

- Problem 25.6:

  (c) Quantity to be calculated should be M_{dust}, not $M_{\mathrm{dust}}/M_{\mathrm{H}}$.
  The original solution given was incorrect: need to replace the factor $p/[(p-1)(4-p)]$ by $1/[(5-p)]$.

  (d) Original solution given was incorrect: need to replace $p/(p-1)$ by $(4-p)/(5-p)$.

  (e) Original solution given was incorrect: need to replace $p/(p-1)$ by $(4-p)/(5-p)$, increase τ_{survival} by factor $25/1.1$, increase M_{dust} by factor $310/14$, and change 0.16% to 3.6%.

- Problem 32.1(a): The numerical value given was incorrect: change 9.5 to 9.2.

- Problem 34.1: The equation number should be (34.11) [not 40.6].