Quiz - May 8, 2001

There is 1 page and 15 pts on this quiz. Please read each question carefully before answering.

1. (6 pts) Below are structural formulas for three constitutional isomers of molecular formula C7H16O and three sets of 13C NMR spectral data (δ, ppm). Match each constitutional isomer to its correct 13C NMR spectral data.

<table>
<thead>
<tr>
<th>Spectrum 1</th>
<th>Spectrum 2</th>
<th>Spectrum 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>74.66</td>
<td>70.97</td>
<td>62.93</td>
</tr>
<tr>
<td>30.54</td>
<td>43.74</td>
<td>32.79</td>
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<tr>
<td>7.73</td>
<td>29.21</td>
<td>31.86</td>
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<tr>
<td></td>
<td>26.60</td>
<td>29.14</td>
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<td></td>
<td>23.27</td>
<td>25.75</td>
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<tr>
<td></td>
<td>14.09</td>
<td>22.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.08</td>
</tr>
</tbody>
</table>

CH₃CH₂CH₂CH₂CH₂CH₂CH₂OH \hspace{1cm} CH₃-C-CH₂CH₂CH₂CH₃ \hspace{1cm} CH₃CH₂-C-CH₂CH₃  

2. (9 pts) Following are three compounds of molecular formula C₄H₈O₂ and three ¹H NMR spectra (next page). Assign each compound to its correct spectrum and assign all signals to their corresponding hydrogens.

(i) \( \text{H}_3\text{C} \hspace{0.5cm} \text{O} \text{CH}_2\text{CH}_3 \)  

(ii) \( \text{H} \hspace{0.5cm} \text{O} \text{CH}_2\text{CH}_2\text{CH}_3 \)  

(iii) \( \text{CH}_3\text{O} \hspace{0.5cm} \text{CH}_2\text{CH}_3 \)