1. Which of the following compounds will absorb UV radiation strongly?

a) W only  

b) W and X  

c) Y and Z  

d) all of them  

e) none of them  

2. Which of the following compounds will give a molecular ion at $m/z = 72$ in the mass spectrum AND absorb strongly near 1700 cm$^{-1}$ in the infrared spectrum?  

[Atomic weights: H = 1, C = 12, N = 14, O = 16]  

3. In the $^1$H NMR spectrum of ethyl acetate, what would be the splitting patterns for groups A, B, C respectively?  

a) triplet quartet doublet  

b) doublet singlet triplet  

c) singlet quartet doublet  

d) triplet doublet triplet  

e) singlet quartet triplet  

4. In the $^1$H NMR spectrum of ethyl acetate, what are the relative intensities of the signals resulting from groups A, B, C respectively?  

a) 1:2:3  

b) 3:2:3  

c) 1:2:1  

d) 3:3:2  

e) Cannot be determined  

5. How many stereogenic centres are present in the following steroid?  

a) 2  

b) 3  

c) 4  

d) 5  

e) 6  

6. What is the best stereochemical descriptor for the following molecule?  

a) (R)- enantiomer  

b) (S)- enantiomer  

c) (E)- isomer  

d) (Z)- isomer  

e) no descriptor required
7. What is the order of priority (1st = highest) and the absolute configuration of the following compound?

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<tbody>
<tr>
<td>a)</td>
<td>Cl</td>
<td>CH₃</td>
<td>COOH</td>
<td>H</td>
</tr>
<tr>
<td>b)</td>
<td>Cl</td>
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<td>c)</td>
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<td>d)</td>
<td>Cl</td>
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<tr>
<td>e)</td>
<td>COOH</td>
<td>Cl</td>
<td>CH₃</td>
<td>H</td>
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</tbody>
</table>

8. Which definition best describes the following pair of compounds?

a) Enantiomers
b) Diastereomers
c) Constitutional isomers
d) Conformers
e) Same compound

9. Consider the monosaccharide shown below as a Haworth projection.

Which one of the Fischer projections is the open chain form of this monosaccharide?

(a)  (b)  (c)  (d)  (e)

10. The Fischer projection of D-lyxose is given. Which one of the following Haworth projections is β-D-lyxofuranose?

(a)  (b)  (c)  (d)  (e)

Correct answers: 1A, 2B, 3E, 4B, 5A, 6D, 7B, 8A, 9D, 10C