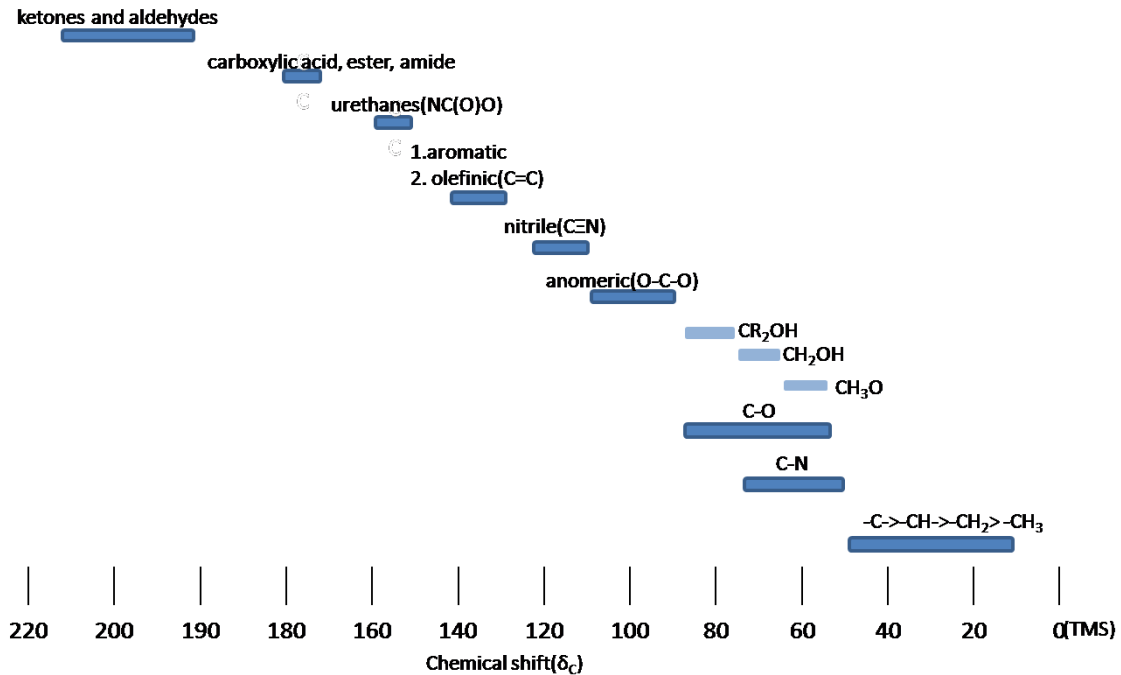


Imagine that you feed rat hepatocytes and skeletal myocytes glucose with  $^{13}\text{C}$  at position C1 and  $^{12}\text{C}$  at positions C2 through C6. In a  $^{13}\text{C}$  NMR experiment, only  $^{13}\text{C}$  gives a signal.  $^{12}\text{C}$  will not show up on the spectrum. Below is a  $^{13}\text{C}$  chemical shift table.



Considering the processes of glycogen synthesis and glycolysis:

1. What chemical shift value or values do you expect to observe in for a  $^{13}\text{C}$  NMR spectrum of the rat myocytes?
2. What chemical shift value or values do you expect to observe in for a  $^{13}\text{C}$  NMR spectrum of the rat hepatocytes?