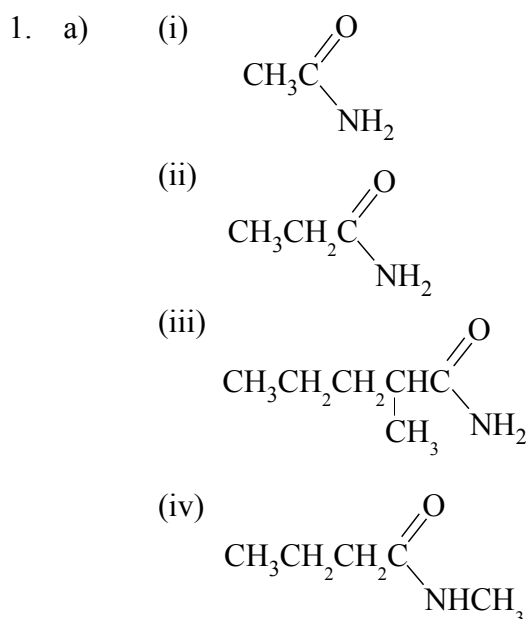


Chemguide – answers

AMIDES: INTRODUCTION



2. a) Amides can form hydrogen bonds between the slightly positive hydrogen atoms attached to the nitrogen atoms and lone pairs on the oxygen atoms of nearby molecules. These add to the other intermolecular forces (van der Waals dispersion forces and dipole-dipole interactions), and increase the amount of energy needed to separate the molecules enough to make the amides melt above room temperature. In the case of methanamide, the molecule is smaller and so doesn't have such strong dispersion forces between its molecules. That means that its melting point is a bit below room temperature.

b) Because they can form hydrogen bonds with water molecules. To mix them, you need to break hydrogen bonds between amide molecules and between water molecules, but they can be replaced by equivalent hydrogen bonds between amide and water molecules.