ANSWERS:

1. D
2. D
3. Bonds broken: +432, +243 = 675 kJ
Bonds formed: 2 x (-428) = -856 kJ
ΔH = -181 kJ
4. (-92.3 + -134.5) – (-74.8) = -152 kJmol-1
5. ΔH = [+335 + (-17) + (-242)] = 76 kJmol-1
6. NO2 − (aq) + H2O(l) 🡪 NO3 − (aq) + 2H+ (aq) + 2e−
7. 0·0324 mol l−1
8. 24.8%
9. 2mol NH3 gives 1mol (NH2)2CO
34g gives 60g
300 tonnes
10. An excess of ammonia will push the equilibrium to the left.
11. There are more moles of gas on the right-hand side of the equation. The forward reaction will be favoured by low pressure causing the carbamate to break down.
12. RDA (60kg adult) = 900 mg
Mass of tuna = 119g
13. Tyrosine
14. Circle draw as:

15. With solvent, alanine and threonine have the same Rf value and travel the same distance and show as a single spot. When they are placed in solvent 2 the spot splits into 2 since alanine and threonine have different Rf values.
16. 16H+ + 10 e- + 2 MnO4-  2Mn2+ + 8H2O
10H2O + 5SO2  5HSO4- + 10e- + 15H+
17. D
18. B
19. + 129 kJ mol-1