1. ethanol can interact with / enhance the effect of other drugs;
with aspirin increased bleeding of the stomach lining/peptic ulcers **or**
other suitable example and their effect, such as sedatives, tranquilisers; 2

[2]

¼t**2.** (a) diazepam/Valium®;
nitrazepam/Mogadon®;
alcohol/ethanol;
Accept other correct depressants. 3

(b) sedation/relaxation/soothing/reduction of anxiety/reduces heart rate / dilates blood vessels / *OWTTE*;
Accept sleepiness. 1

[4]

3. at moderate doses sedation/soothing/reduction of anxiety/impaired judgement;
at higher doses induce sleep/unconsciousness / extremely high dose may cause death/organ failure; 2

[2]

4. (i) orange to green; 1

(ii) reduced because oxidation number of Cr decreases / Cr gains electrons;
Explanation needed for mark. 1

[2]

5. (a) (i) *Oxidation:*
$C_2H_5OH + H_2O \rightarrow CH_3COOH + 4H^+ + 4e^-$;

Reduction:
$Cr_2O_7^{2-} + 14H^+ + 6e^- \rightarrow 2Cr^{3+} + 7H_2O$;
Accept balanced equation with molecular formulas.
*If both equations are wrong, award **[1]** for $C_2H_5OH \rightarrow CH_3COOH$ and $Cr_2O_7^{2-} \rightarrow 2Cr^{3+}$.*
*If correct equations are used but oxidation and reduction reversed, award **[1]**.* 2

(ii) orange to green; 1

(b) peak at 2950 cm^{-1}/ absorption occurs due to C–H bonds in ethanol;
No mark for absorption due to just ethanol, or O–H bond in ethanol (water vapour in breath also contributes).

intensity / height of peak / absorption / amount of transmittance depends on amount of ethanol / compare absorption to standard / reference/ control sample / sample containing no alcohol; 2

[5]

6. *Any two of the following*:
alcohol has a synergistic effect with other drugs;
alcohol depresses central nervous system which alters the effect of other drugs;
increased risk of stomach bleeding with aspirin; 2 max

[2]

7. (a) the dichromate(VI) ion is reduced / forms the Cr^{3+} ion;
the ethanol is oxidized/forms ethanal/ethanoic acid; 2

(b) sample of breath passed into infrared spectrometer;
ethanol in breath absorbs because of C-H bond;
compares breath with air/reference sample with no ethanol; 3

[5]