1. Two substances commonly used in antacid tablets are magnesium hydroxide and aluminium hydroxide.

(a) State an equation to represent a neutralization reaction with one of the above antacids.

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.....

(1)

(b) State and explain whether 0.1 mol of magnesium hydroxide is more effective or less effective than 0.1 mol of aluminium hydroxide.

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(1)

(c) Suggest why compounds such as sodium hydroxide or potassium hydroxide cannot be used as an antacid.

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(1)

(d) Explain why alginates and dimethicone are often included in antacid tablets.

Alginates:

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.....

Dimethicone:

.....

.....

(2)

(Total 5 marks)

2. (a) Sodium hydrogencarbonate, $NaHCO_3$, and magnesium hydroxide, $Mg(OH)_2$, can both be used as antacids.

(i) Give the equations for the reactions of sodium hydrogencarbonate and magnesium hydroxide with hydrochloric acid.

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(2)

(ii) Compare the effectiveness of 1.00 g of sodium hydrogencarbonate to 0.50 g of magnesium hydroxide in combating acidity in the stomach.

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.....

(3)

(b) Explain why alginates are often added to antacids.

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(1)
(Total 6 marks)

3. Dyspepsia, commonly known as indigestion, is due to excess acid in the stomach and can be treated using antacids.

(a) State the name of the acid found in the gastric juices of the stomach.

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(1)

(b) Two examples of antacids are aluminium hydroxide and calcium carbonate. State the equations to show the action of each antacid.

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(2)

(c) Antacid medicines often contain alginates and anti-foaming agents.

(i) Explain briefly how alginates prevent heartburn.

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(2)

(ii) Explain why anti-foaming agents are added and state **one** example.

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(2)
(Total 7 marks)

4. The walls of the human stomach contain cells that produce gastric juices. Sodium hydrogencarbonate is an antacid often used to neutralize excess acid.

(a) State an equation for the reaction of stomach acid with this antacid.

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(1)

(b) Calcium carbonate can also neutralize stomach acid. The same amounts (in moles) of sodium hydrogencarbonate and calcium carbonate are available. Deduce which antacid will neutralize the greater amount of acid present in the stomach and explain your reasoning.

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(2)
(Total 3 marks)

5. One common type of medicine taken orally is an antacid. Antacids such as sodium hydrogencarbonate are taken to reduce stomach acidity.

(a) State the **names** of **two** metals, other than sodium, whose compounds are often used in antacids.

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(1)

(b) Write an equation for the neutralization of hydrochloric acid in the stomach by sodium hydrogencarbonate.

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(1)

(c) Explain how heartburn is caused.

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(1)

(d) Explain why dimethicone is added to some antacids.

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(1)

(Total 4 marks)