ACID/BASE BALANCE

NORMALS

pH 7.35 – 7.45

CO_2 35 - 45

HCO_3 22 – 26

When the pH is decreased (acidosis) and its due to the bicarbonate level being low (acidosis), the lungs compensate by hyperventilating to decrease CO2.

RESPIRATORY ACIDOSIS

Decreased CO_2 elimination by the lungs with a resultant elevated $PaCO_2$ and decreased pH. A cause of hypercapnia is hypoventilation (depression of ventilation by drugs such as opioids).

RESPIRATORY ALKALOSIS

Excessive elimination of CO_2 with a resulting decreased $PaCO_2$ and increased pH. It occurs when alveolar ventilation exceeds CO_2 production.
Hyperventilation is a cause.

METABOLIC ACIDOSIS

Metabolic acidosis is defined as a primary decrease in $HC0_3$.
Four common causes of metabolic acidosis are ketoacidosis, lactic acidosis, renal failure, and toxic dose of salicylates.
If the diabetic patient has insufficient insulin to block the mobilization and metabolism of free fatty acids, the metabolic byproducts are ketones. They cause metabolic acidosis with an increased unmeasured anion gap.

METABOLIC ALKALOSIS

Metabolic alkalosis is defined as a primary increase in plasma $HC0_3$.
Nasogastric suction
Vomiting and laxative & diuretic abuse.