Second 2008
VIVA 1

In this station you will be asked to draw and discuss a capnograph tracing. Draw a graph of partial pressure of CO2 versus time, from a ventilated patient, i.e. a 'capnograph tracing'.

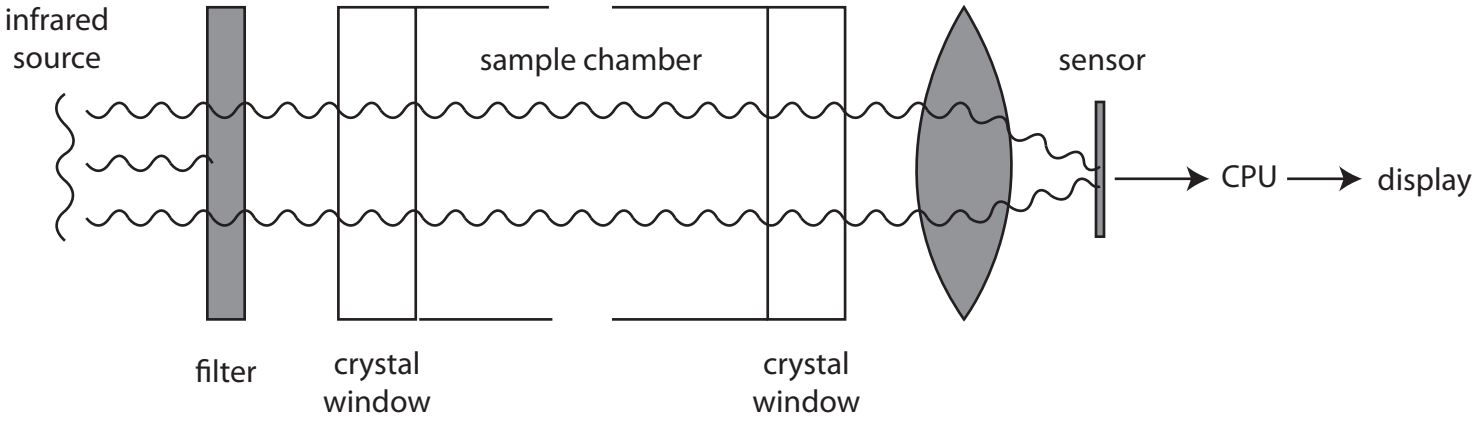
This viva explored the candidates' knowledge in relation to the following points

Capnograph trace and information that can be ascertained from it
Methods used to measure partial pressure of CO2 and the underlying principles
ETCO2 and PaCO2 relationships and factors that influence it
Capnograph and deadspace

"What methods can be used to measure CO2 (in the gas phase)"

- infrared absorption
  - gases with two or more different atoms absorb IR
  - each such gas absorbs specific wavelengths
  - set involves a radiation source, filter, reference gas (2nd chamber), detector and display
- raman scattering
  - involves the v. rare inelastic scattering of photons, separate from normal rayleigh scattering
- mass spectrometry
  - uses mass and charge characteristics
- chemical analysis
  - Lloyd-haldane apparatus

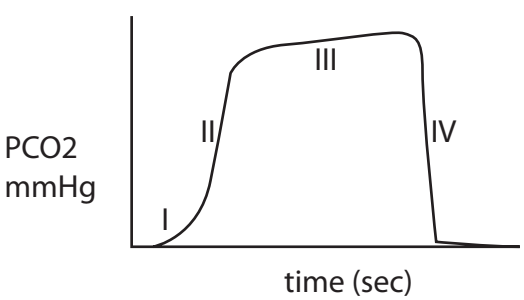
"Please decribe in greater detail the capnograph measurement of ETCO2"



Infrared analysis

- the source is usually a heated wire
- the filter selects the desired wavelength
- the sensor measures the amount of IR light transmitted
- the CPU calculates the amount absorbed based on beer lamberts law
- results are displayed on the monitor

"Please draw the capnograph trace and explain the different phases"



Phases

I	Inspiratory baseline
II	Expiratory upstroke
III	Expiratory plateau
IV	Inspiratory downstroke