GRAPHS AND STUFF YOU NEED TO BE ABLE TO DRAW

PHYSIOLOGY / MEASUREMENT

Respiratory

- Oxyhaemoglobin dissociation curve (also content)
  - Effect of CO2, temperature, 2,3-DPG
  - Myoglobin
  - Fetal Hb
  - Anaemia
  - Pregnancy / Double Bohr effect
- CO_2 dissociation curve
- Oxygen cascade
- Ventilatory response to CO_2 and O_2
- Spirometry / lung volumes (also changes in pregnancy)
- Closing capacity and FRC vs age
- Single breath nitrogen washout
- Dynamic compliance curve (pressure-volume curve) showing work of breathing
- Static pressure-volume curve and compliance
- Flow volume loop
- Distribution of ventilation and blood flow in upright lung
- Pressures, volumes, flows during a breathing cycle
- PVR versus lung volume
- Know about:
  - Iso shunt diagram
  - VQ line (oxygen vs carbon dioxide curve)

Cardiovascular

- Wigger's diagram (will be asked to draw parts of it)
  - ECG
  - LA, LV, aortic pressures
  - LV volume
  - CVP

- **Aortic root pressure**
- Heart sounds

- **CVP or RA pressure wavoform**
- **PA catheter pressure changes**
- Aortic and radial pressure waveforms
- **ECG (also vectors)**
- **LV pressure-volume loop**
- **Starling curve and variations**
- **Coronary artery blood flow** (cf aortic root pressure trace)
- Cardiac output and venous return curves (may be asked by some examiners)
  - Normal
  - Haemorrhage
  - Vasoconstriction
  - Vasodilation
- **Changes during the Valsalva manoeuvre**
- **Depolarisation of SAN, AVN, ventricular muscle** (including phases, ion fluxes)

Neurophysiology

- **CBF autoregulation curve (CBF vs MABP) – change with anaesthesia**
- **CBF versus pCO_2, pO_2**
- **Intracranial elastance curve (ICP vs intracranial volume)**
- **Nerve action potential**

Renal

- **Renal autoregulation curve (RBF and GFR vs MABP)**
- Glucose tmax

Measurement

- **Absorption curves for Hb and HbO_2**
- **Capnograph**

PHARMACOLOGY / STATISTICS

Pharmacodynamics

- **Dose-response curves (graded and quantal)**
  - **Agonist / antagonist / partial antagonist etc**
  - **Therapeutic index**

- **Drug effects**
  - Effect of volatiles or opioids on CO_2 **ventilatory response curve**
  - Effect of volatiles on CBF autoregulation

Pharmacokinetics

- **Drug ionisation vs pH**
  - Alfentanil / fentanyl
  - STP, lignocaine

- **Exponential function curve – half-life, time constant etc**

- **Curves for volatile agents (with values)**
  - **Wash-in**
  - **Wash-out**

- **Concentration vs time curves**
  - **First order – concentration vs time after iv bolus dose**
  - **Effect site concentration vs time**
    - **Propofol bolus - plasma and effect site concentrations**
  - Zero order

- Context sensitive half-times for opioids

Drug structures (usually identify rather than draw)

- Barbiturate structure (keto and enol forms of STP)
- **Propofol**
- **Volatile agents (halothane, isoflurane, sevoflurane, desflurane)**
- **Sympathomimetics** (synthesis and structure-activity relationships)
- **Examples of isomers**
- Identify +/- discuss structure activity
  - Opioids (morphine, fentanyl)
  - Local anaesthetics
  - Neuromuscular blockers

Statistics

- Usually interpretation of data or graphs, eg. Box and whisker plot

- Normal distribution curve standard deviation, mean etc