



The Hong Kong College of Anaesthesiologists
Intermediate Fellowship Examination
Written Paper in Physiology

Friday, 20 July 2012, 09:00 AM - 11:00 AM

The questions carry equal marks. Answer ALL of them.

1. Define and outline the factors affecting Basal Metabolic Rate.
2. Describe the role of baroreceptors in the control of arterial pressure.
3. Explain the effect of severe aortic stenosis on left ventricular myocardial oxygen supply and demand.
4. Outline the effects of lung volume on airway caliber and resistance.
5. Explain the physiological consequences of a healthy adult man ingesting sodium chloride tablets 5 grams without drinking any water.
6. How is hydrochloric acid formed in the stomach? What are the mechanisms controlling the secretions of hydrochloric acid in the stomach?
7. What are the main functions of cerebrospinal fluid? Briefly describe its formation and composition.
8. Describe the principles of the paramagnetic analyzer and the fuel cell for measuring oxygen concentration in a gas sample.
9. Discuss the endocrine functions of the kidneys.
10. Describe the mechanisms of oxygen transfer across the placenta from mother to fetus.
11. Explain how cardiac output is measured using the thermodilution technique.
12. Outline the Starling's forces governing the movement of fluid across a capillary. Explain the pathophysiological processes that lead to edema formation.

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