



The Hong Kong College of Anaesthesiologists
Intermediate Fellowship Examination
Written Paper in Physiology
Friday, 22 July 2016, 09:00 - 11:00

The questions carry equal marks. Answer **ALL** of them. For questions with multiple parts, allocation of marks is indicated in the brackets.

1. Describe the physiological changes related to ageing that affect oxygen delivery to tissues.
2. Compare and contrast the capillary beds of the lungs and the kidneys.
3. Outline, with examples, the different ways of intercellular communication.
4. Describe the physiological mechanisms that regulate the synthesis and release of cortisol.
5. How is the autonomic nervous system organized in the body (50%)? What are the locations and types of major neurotransmitters involved (50%)?
6. Describe the filtration and reabsorption of plasma sodium in the kidneys.
7. With the aid of a labeled diagram, illustrate and explain the changes in lung volume versus transpulmonary pressure during a vital capacity breath taken by (1) a healthy adult (50%); and (2) a morbidly obese patient (50%).
8. How would changes in arterial partial pressure of carbon dioxide and oxygen affect respiratory rate in an awake patient?
9. Define and outline the important features of an exponential decay. Illustrate your answer using the clinical example of nitrogen washout during pre-oxygenation.
10. Describe the different phases of cardiac diastole and their contributions to ventricular filling (50%). Outline the factors affecting left ventricular filling during diastole (50%).
11. Outline the different types of hypersensitivity immune reactions.
12. Describe the physiological changes to the foetal circulation at birth.

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