



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

Friday, 22 July 2011, 09:00 AM - 11:00 AM

The questions carry equal marks. Answer ALL of them.

1. Draw a diagram to demonstrate the oxygen cascade. Explain the physiological factors that influence the decrements in oxygen tension down the cascade.
2. What is “innate immunity”? Give an account of the different components, including their roles and functions.
3. Describe the structure and function of the lower oesophageal sphincter. What factors alter the tone of the sphincter, and what might increase the risk of gastric regurgitation peri-operatively?
4. Outline the physical principles and limitations of using the thermistor and the thermocouple to measure temperature.
5. What are the physiological effects of an acute decrease in circulating volume to the kidneys?
6. How does trapping your finger in a door result in the perception of pain? Focus particularly on the mechanisms at the periphery. How is pain transmitted and modulated within the spinal cord?
7. What are the main functions of cerebrospinal fluid? Briefly describe its formation and composition.
8. Give an account of the factors that control the secretion of thyroid hormones.
9. Write short notes on the respiratory mechanics of the neonate.
10. Outline the differences between laminar and turbulent flow. Explain the physics, advantages and limitations of one type of pneumotachograph.
11. Describe features of the coronary circulation. Outline the factors affecting coronary blood flow.
12. Describe the cardiovascular and respiratory effects of intermittent positive pressure ventilation of the lungs.

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