



SECOND EXAMINATION FOR MEDICAL DEGREES

PHYSIOLOGY II

MARCH 2011

TIME: THREE HOURS

Answer all questions. Answer each question in a separate book.

1. Give physiological explanations to the following.

- 1.1 Patients with renal artery stenosis develop hypertension. (30 marks)
1.2 Coronary arterial blood flow is increased with an increase in heart rate. (30 marks)
1.3 Astronauts are not advised to stand up during launching of the rocket. (40 marks)

2.

- 2.1 Explain the following terms using examples.
2.1.1 Hypoxia (15 marks)
2.1.2 Hypercapnoea (15 marks)
2.2 Explain why hypoxia and hypercapnoea do not occur during isotonic muscular exercise. (70 marks)

3.

- 3.1 State two endocrine disorders in which tachycardia is a feature. (10 marks)
3.2 Explain the physiological actions of the hormone involved in one of the endocrine disorders stated in 3.1. (25 marks)
3.3 Describe the similarities and differences in clinical features in the two conditions stated in 3.1. (35 marks)
3.4 List four possible investigations along with expected results that could be done on patients with each of the endocrine disorders stated in 3.1. (30 marks)

4. A little boy who was touching the flame of a candle suddenly withdrew his hand due to pain. His mother applied some local anesthetic gel over and around the burn to reduce the pain. After that, for many years he was afraid to go near candles.

1. State the physiological explanation for the perception of pain by this child. (35 marks)
2. Explain the mechanism of withdrawal of his hand from the fire. (30 marks)
3. Explain physiologically the basis behind application of local anesthetic gel in relieving the pain. (10 marks)
4. Explain physiologically the basis behind his fear for candles. (25 marks)

5. Write short notes on the following.

- 5.1 Cardiovascular changes during pregnancy (25 marks)
5.2 Role of Vitamin D₃ in calcium metabolism (25 marks)
5.3 Control of bladder functions (25 marks)
5.4 Intestinal motility (25 marks)

==== The End ====