

Homeostasis

- 1) Define the following terms; (4)
 - a. Homeostasis
 - b. Positive feedback
 - c. Negative feedback
 - d. First messenger
 - e. Second messenger
- 2) Give 2 examples of positive feedback and 2 examples of negative feedback? (2)
- 3) What is the normal range of blood glucose concentration? (1)
- 4) What are the exocrine cells of the pancreas known as? (1)
- 5)
 - a. What is the name of the endocrine tissue in the pancreas? (1)
 - b. What are the three different types of endocrine cells it contains and what does each produce? (3)
- 6) Why is the brain not involved in the control of blood glucose? (1)
- 7) What proportion of the pancreas is endocrine? (1)
- 8) Define the following terms; (3)
 - a. Glycogenesis
 - b. Glycogenolysis
 - c. Gluconeogenesis
- 9) Explain the mechanism of action of insulin and what changes take place as a result? (4)
- 10) Describe how insulin secretion is controlled by the beta cells? (4)
- 11) Describe how glucagon and adrenaline actually work? (6)
- 12) Why do glucagon and adrenaline rely on second messengers? (1)

- 13) What are the consequences of glucagon production? (3)
- 14) What are the consequences of adrenaline production? (3)
- 15) Distinguish between the mechanisms of action of water soluble and lipid soluble hormones and give reasons why? (3)
- 16) Where are the adrenal glands located, describe their structure, which hormones do they produce and what are their functions? (4)
- 17) Distinguish between the two types of diabetes mellitus? (4)
- 18) What are the symptoms of diabetes mellitus? (5)
- 19) What are the symptoms and causes of hypoglycaemia? (4)
- 20) What are the symptoms and causes of hyperglycaemia? (3)
- 21) What are the complications of diabetes mellitus? (6)
- 22) Explain why insulin treatment is an injection and not an oral tablet? (1)
- 23) What is the difference between slow-acting and fast-acting insulin? (1)
- 24) How does exercise help with treating diabetes? (2)
- 25) Why are diabetics encouraged to eat many small meals rather than a few large ones? (1)
- 26) How have genetically modified bacteria helped with the treatment of diabetes? (2)
- 27) What are the differences between endotherms and ectotherms? (3)
- 28) Explain how thermoregulation takes place and why it is important? (5)
- 29) Explain how the process of osmoregulation works? (5)
- 30) What are the roles of the kidneys? (4)
- 31) What are the divisions of the nervous system? (3)
- 32) Where are the baroreceptors found and what do they do? (4)
- 33) Where are the chemoreceptors found and what do they do? (4)
- 34) Where is the cardiovascular centre located? (1)
- 35) Describe how the nervous system brings about changes in the heart rate? (6)

36) What is the SAN and where is it located? What is its role? (2)

37) Explain how the hormonal system can bring about changes in the heart rate? (2)

Total: /112