

Name of the Student: _____

Max. Marks : 25 Marks

Time : 25 Minutes

Q1.

The cardiac cycle is controlled by the sinoatrial node (SAN) and the atrioventricular node (AVN).

Describe how.

(Total 5 marks)

Q2.

In a mammal, urea is removed from the blood by the kidneys and concentrated in the filtrate.

(a) Describe how urea is removed from the blood.

(2)

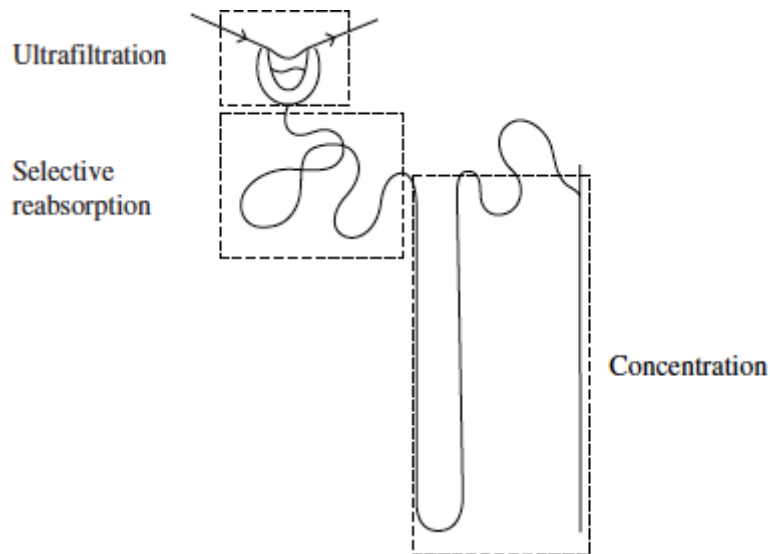
(b) Explain how urea is concentrated in the filtrate.

(3)

(Total 5 marks)

Q3.

Three processes are involved in the formation of urine in a mammalian kidney. These are ultrafiltration, selective reabsorption and concentration. The diagram shows where these processes take place in a nephron.



(a) Describe how ultrafiltration produces glomerular filtrate.

(5)

(b) Some people who have diabetes do not secrete insulin. Explain how a lack of insulin affects reabsorption of glucose in the kidneys of a person who does not secrete insulin.

- [illegible]

(Total 15 marks)