

High Order Thinking Skills (HOTS) Question

Q.1. Why is the closed circulatory system more efficient than the open system ?

Ans. (i) It is found in higher animals and is more efficient because the blood flows far more rapidly in closed vessels than in wide and open channels and in body cavities.

(ii) The arterioles diameter in closed system can be regulated to alter the blood flow through them, so the blood flowing through a tissue or organ maybe regulated according to its need by controlling the contraction and relaxations of smooth muscles on its arterioles.

Q. 2. Write a note on "Regulation of Cardiac Activity"

Ans. Regulation of Cardiac Activity :

(i) The special neural centre located in medulla oblongata of brain can moderate cardiac function through autonomic nervous system. Therefore, ANS helps in controlling heart regulation.

(ii) The parasympathetic neural signals, (component of ANS) decreases the rate of heart beat, speed of conduction of action potential and also the cardiac output.

(iii) The adrenal medullary hormones enhance cardiac output.

(iv) The neural signals through sympathetic nerves may increase heart beat rate and the strength of ventricular contraction and also cardiac output.

Q. 3. If a patients' ECG revealed an abnormally long delay between the P wave and the QRS deflection, what would that suggest?

Ans. If a patients' ECG revealed an abnormally long delay between P wave and the QRS deflection, it suggest that there is a delay of conduction from the atria to the ventricles, hence the stimulation from SA nodes are conducting stimuli very slowly to the ventricles.