Body Fluids and Circulation

Assertion Reason Questions

Given below are two statements labelled as Assertion (A) and Reason (R). Select the most appropriate answer from the options given below:

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

1. Assertion (A): Human heart is called myogenic.

Reason (R): Normal activities of the heart are regulated intrinsically, i.e. auto-regulated by specialised muscles.

Ans. (a) Both A and R are true and R is the correct explanation of A.

Explanation: Muscles of the human heart are independent of any other impulse from the brain, as the nodal tissue itself in the heart generates impulse which regulates the rate of the heartbeat and hence the heart is myogenic in nature.

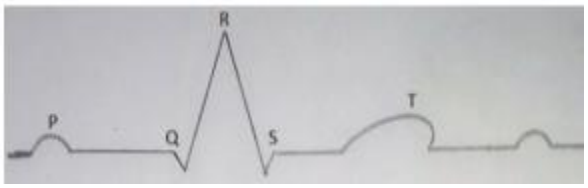
2. Assertion (A): Blood pumped by the right ventricle enters the pulmonary artery.

Reason (R): Right atrium pumps blood into the aorta.

Ans. (c) A is true but R is false.

Explanation: Blood flow of the human heart is carried out by arteries and vessels. Oxygenated blood is collected from lungs by Pulmonary veins and it is passed into the left atrium, left atrium then pumps blood to left ventricle, and from left ventricle blood is passed to the aorta so that it can be supplied to all the body parts along with heart.

3. The representation of standard ECG corresponds to a specific electrical activity of heart. Each peak in the ECG is identified with a letter from P to T that corresponds to a specific electrical activity of the heart.



Assertion (A): ECG is a great clinical significance.

Reason (R): ECGs obtained from different individuals have roughly the same shape for a

given lead configuration, any deviation from this shape indicates a possible abnormality or disease.

Ans. (a) Both A and R are true and R is the correct explanation of A.
Explanation: ECG provides detailed conditions of the human heart, and it becomes easy for doctors to diagnose any disease related to the heart without any complicated procedure. The interval between two successive QRS complexes can be used to measure the heart rate when the cardiac rhythm is regular. Any deviation in ideal ECG indicates irregular activity in the heart.

4. Assertion (A): Heart is mesodermal in origin.
Reason (R): The opening between the right atrium and the right ventricle is guarded by a bicuspid valve.

Ans. (c) A is true but R is false.
Explanation: Human heart is derived from mesoderm. Mesoderm is a primary germ layer of the embryo lying between the other two germ layers namely ectoderm and endoderm. From it, all connective tissues arise. The lateral plate of the mesodermal layer gives rise to the heart, to the blood cells and the blood vessels of the circulatory system. Tricuspid valve is present between the opening of the right atrium and right ventricle, it prevents backflow of blood from right ventricle to right atrium.