

Subject : Animal physiology

Topic : Electrocardiogram

Class : III B.Sc. Zoology



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Venue : St. John's college, Palayamkottai

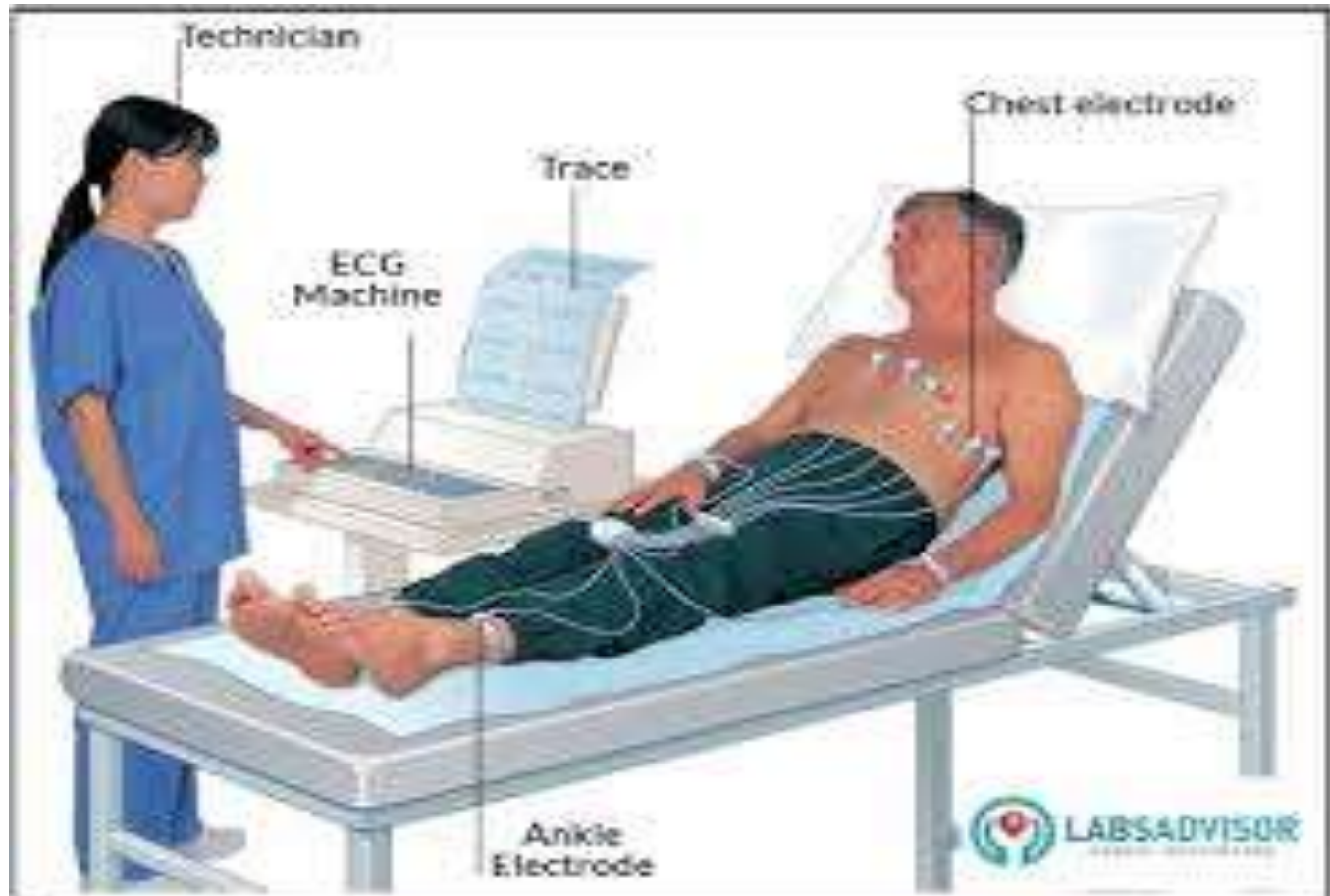
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ELECTROCARDIOGRAM

Introduction :

- The record of electric current generated by the heart is called electrocardiogram.
- The heart is made to beat by an electrical impulse originating in the sinuauricular node.
- The electric impulse will be transmitted throughout the body.
- This electrical current can be recorded by a machine called electrocardiograph.
- ECG is used to measure the electrical conduction system of the heart.
- The electrical activities are recorded on a paper called ECG paper.

ECG Testing



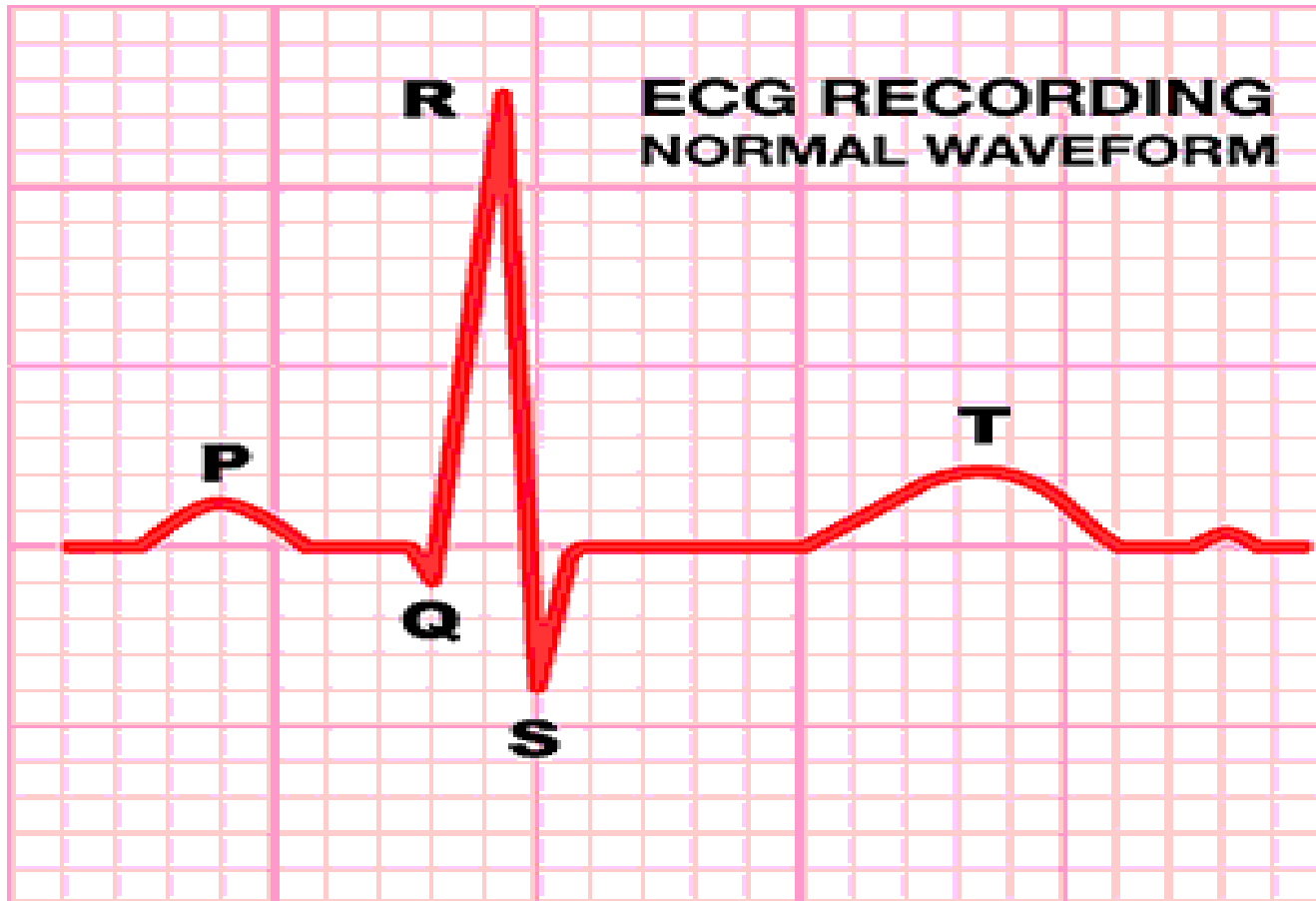
ECG Machine:

- ECG machine is connected to the surface skin of the body through electrodes called ECG leads.
- The machine has 10 electrodes.
- The electrocardiogram of man shows a series of waves.
- The waves represent the sequence of depolarization and repolarization of the auricles and ventricles.

Electrocardiograph:

- Electrocardiograph has 5 consecutive waves
 1. Three upward waves or positive waves
 2. Two downward waves or negative waves.
- They are named as PQRST.
- The upward deflections are P,R, and T.
- Downward waves are Q and S.
- The waves are alternately up and down.
- There are 2 isoelectric periods,
 1. The shorter one between P and Q.
 2. The longer one between S and T.

Electrocardiograph showing normal heart beat:



P Wave :

- P wave is a positive wave.
- It is also called atrial complex.
- It is the first wave. It has a duration of 0.1 second.
- It represents the wave of depolarization
- It spreads from sinu-auricular node throughout auricles.

QRS Waves:

QRS Waves are caused by ventricular depolarization

- It has a duration of 0.06 to 0.1 second.
- Q is the first downward wave
- R is the 2nd upward deflection
- S is the second downward wave

T Wave:

- It is the repolarization wave of the ventricle.
- T is the upward deflection.

P and Q period:

- It is the isoelectric period where the curve is flat.

ST segment:

- It is the period at which the entire ventricle is depolarised.
- It is the second isoelectric period.
- It is a long period.
- It has a duration of 0.27 second.

Conclusion:

- ECG helps to determine,
 1. Heart beat rate
 2. Heart rhythm
 3. Abnormal electrical conduction
 4. Poor blood flow of heart muscles
 5. Heart attack
 6. Coronary artery disease.
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THANK YOU