

# Electrocardiogram ECG

or

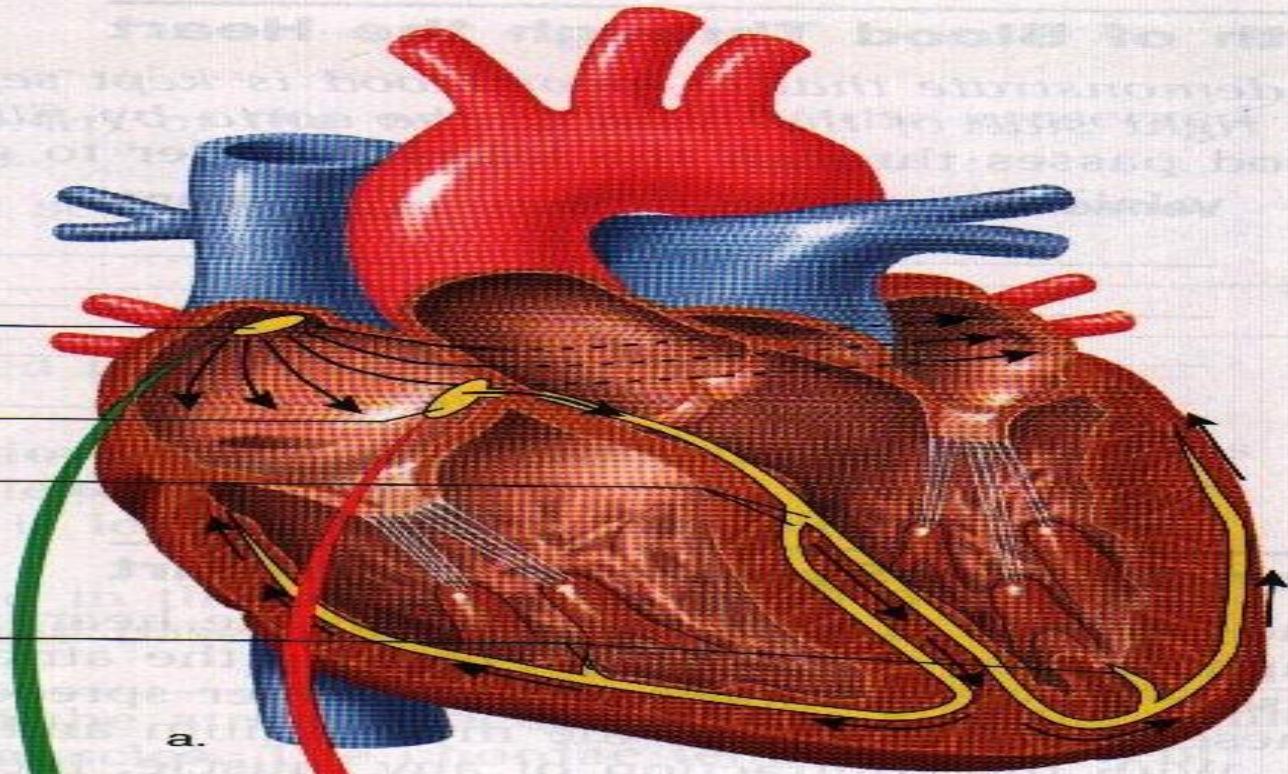
# EKG

**Electrocardiography**: is the process of recording

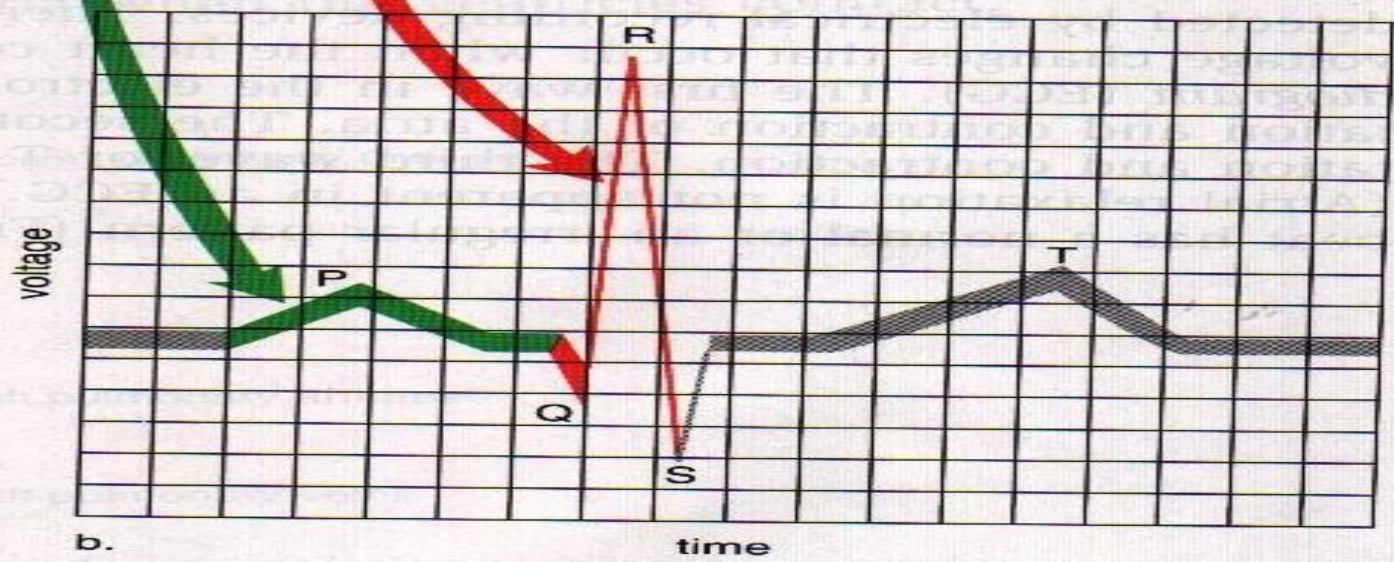
# **Introduction :**

**It is the recording of cardiac electrical activities which appear as waves and periods that record on special paper.**

SA node  
AV node  
branches of  
atrioventricular  
bundle  
Purkinje fibers



a.



b.

# **Objective:**

**1.to get the normal recording of electrocardiogram.**

**2.to diagnosis of cardiac disease that include:**

**a. arrhythmias or irregularity  
of cardiac muscle which is  
reflect a changes in wave  
amplitude  
e.g cardiac hyper trophy.**

**b.change in the shape of wave  
result from injury to cardiac  
muscle.**

**e.g angina pectoris due to  
ischemia.**

**There are two main types of recording:**

**1.the standard bipolar limb lead:**

**a.lead I : the differences between left and right arm.**

**b.lead II : between the right arm and left leg.**

**c. lead III: between left arm and left leg.**

**We used the lead II mostly due to lead II is equal to the sum of lead I and lead III.**



## **2.the uni polar limb lead:**

**Record the potential on the surface of chest at special site that include:**

**a.chest lead:**

**V1:record in the right forth inter costal space at the sternal border.**

**V2:in the same inter costal space  
but at the left sternal border.**

**V3:positional at mid way  
between V2 and V4.**

**V4:recorded in the fifth intercostals space.**

**V5:recorded in the anterior axillary line.**

**V6:recorded in the mid axillary line.**

**b. augmented limb lead:  
that read 3 uni polar limb  
lead:**

**1.aVR: right arm is + while  
the left arm and left leg \_.**

**2.aVL :left arm is +while  
right arm and left leg \_.**

**3.aVF:left foot is the +  
while right and left leg\_.**

# Electroencephalogram EEG

**EEG:**

**waves are originate from  
action potential of  
cortical neural cell.**

# **Objective:**

- 1. recording the variation in brain potential (brain waves).**
- 2. activity of superficial layer of cortical gray substances.**



**3. diagnosis cerebral disease  
like epilepsy, tumor, brain  
cyst.**

**4. diagnosis of mental  
disorder and structural  
disorder.**

**5. diagnosis of brain death.**

## **Type of EEG waves:**

**Waves classified according to the amplitude and frequency into:**

**1.alpha waves: regular wave produced during rest and closed eye.**

**Frequency 8-12 cycle/second.**

**Amplitude 50mv.**

**2. beta wave: irregular wave produced during excitation and open eye.**

**Frequency 18-30 cycle/second.**

**Amplitude 50mv**

## **3.theta wave:**

**regular wave in children.**

**Frequency 4-7cycle/second**

**Amplitude 750mv**

## **4. delta wave:**

**regular and slow wave, in  
new born, elderly people  
and during sleep.**

**Frequency 4cycle/second**

**Amplitude 200 mv**

## **Material and method:**

**1.3disk electrodes; the white or active electrode on occipital bone, the black electrode on forehead and the ground on the tip of ear.**

**2.preamplifier**

**3.physiograph**

## **Procedure :**

**Get a record from a wake relaxed person for few minutes with closed eyes(alpha)ask the person question so as to diagnosis mental activity and observe change in waves (beta).**