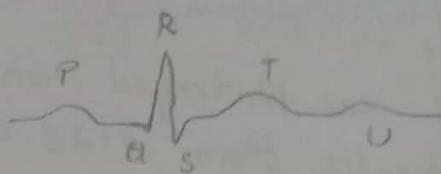


# Unit - I - Cardiac Equipment

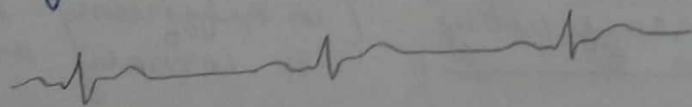
## Normal ECG waveform



Waves	Origin	Amplitude (mV)	Duration (sec)
P wave	Atrial depolarisation (or) contraction	0.25	0.12 to 0.22 (P-R interval)
R wave (QRS complex)	Repolarisation of the atria & depolarisation of the ventricle	1.60	0.07 to 0.11
T wave	ventricular repolarisation (Relaxation of myocardium)	0.1 to 0.5	0.05 to 0.15 (ST interval)
U wave	Slow repolarisation of the intraventricular (purkinje fibers) system	< 0.1	0.2 (T-U interval)

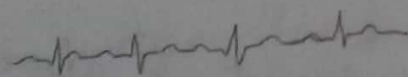
## Abnormal waveform

1. Sinus bradycardia (less than 60 bpm)



⇒ Regular rhythm,  
unusually slow  
heart beat.

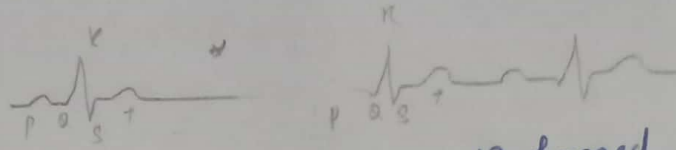
2. Sinus Tachycardia (101-160 bpm)



→ Regular rhythm,  
unusually fast  
heart beat

# Heart block

- 2) First degree AV Block → due to prolonged conduction time



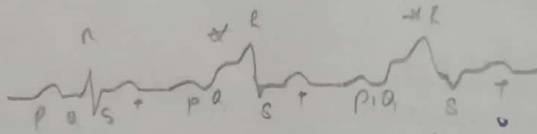
Here PQ segment has prolonged conduction (i.e) greater than 0.22 second.

- 4) Second degree AV Block → Due to conduction of few pulses instead of all from atrium



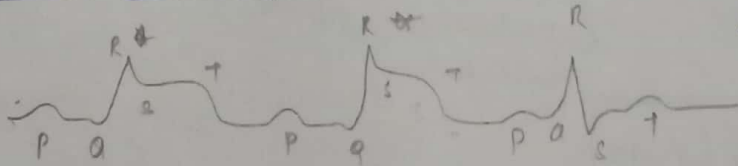
Single P wave, absent QRS complex & T wave

- 5) Bundle block → Due to improper conduction of the stimulus to the ventricle.



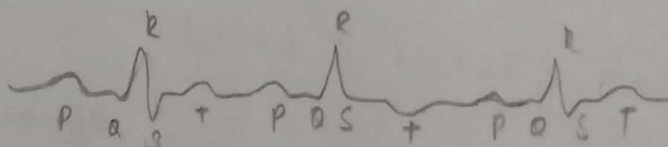
Here QRS complex is widened (i.e) QRS interval is greater than 0.1 sec.

- 6) Myocardial infarction (insufficiency / Block blood flow due to clot in the blood vessels)



Here ST segment is elevated

- 7) Coronary insufficiency (insufficiency blood flow to coronary arteries)

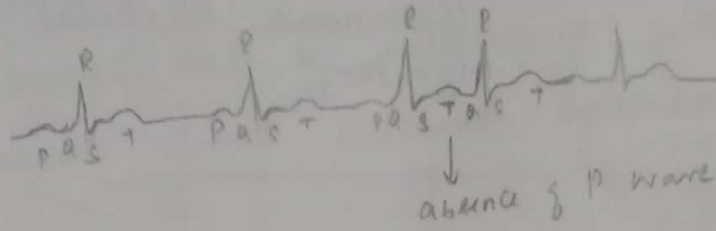


Here ST segment is depressed & negative wave is present

2

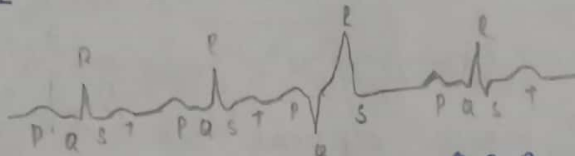
Lead Condy  
time

## Atrial premature beat/complex



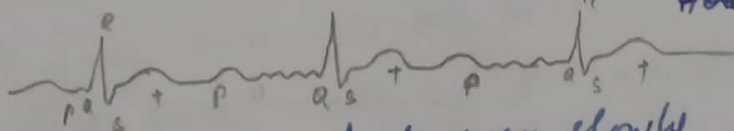
Premature P wave (different from normal sinus P waves) & normal QRS-T complex

## 9) Ventricular premature beat/complex.



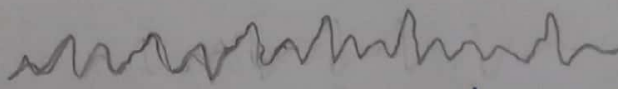
Abnormal & long QRS complex & abnormal T wave, faster than normal rhythm, no associated P wave

## 10) Atrial fibrillation → Due to fast beating rate (300-500 bpm) of the atrium here (Atria beat irregularly)



Here ventricles beat very slowly  
P wave - very irregular

## 11) Ventricular fibrillation → Due to fast beating rate of the ventricles. No pumping of the blood to different parts of the body.

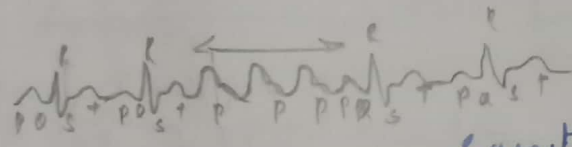


Here there is a train of pulses instead of PQRST waves.

12) Asystole → cardiac arrest rhythm with no discernible electrical activity on ECG monitor.

It is flat line, P waves & QRS waves are not present

13) Atrial flutter → atria beat regularly, but faster than usual.



P wave appear as sawtooth  
PR interval → not measurable.