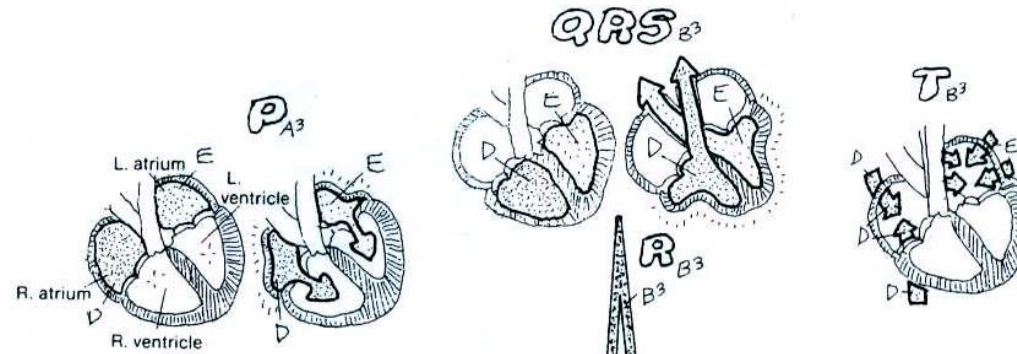


BLOOD FLOW:-

OXYGEN-POOR D
 OXYGEN-RICH E



ELECTROCARDIOGRAM (ECG) :-

P WAVE A^3

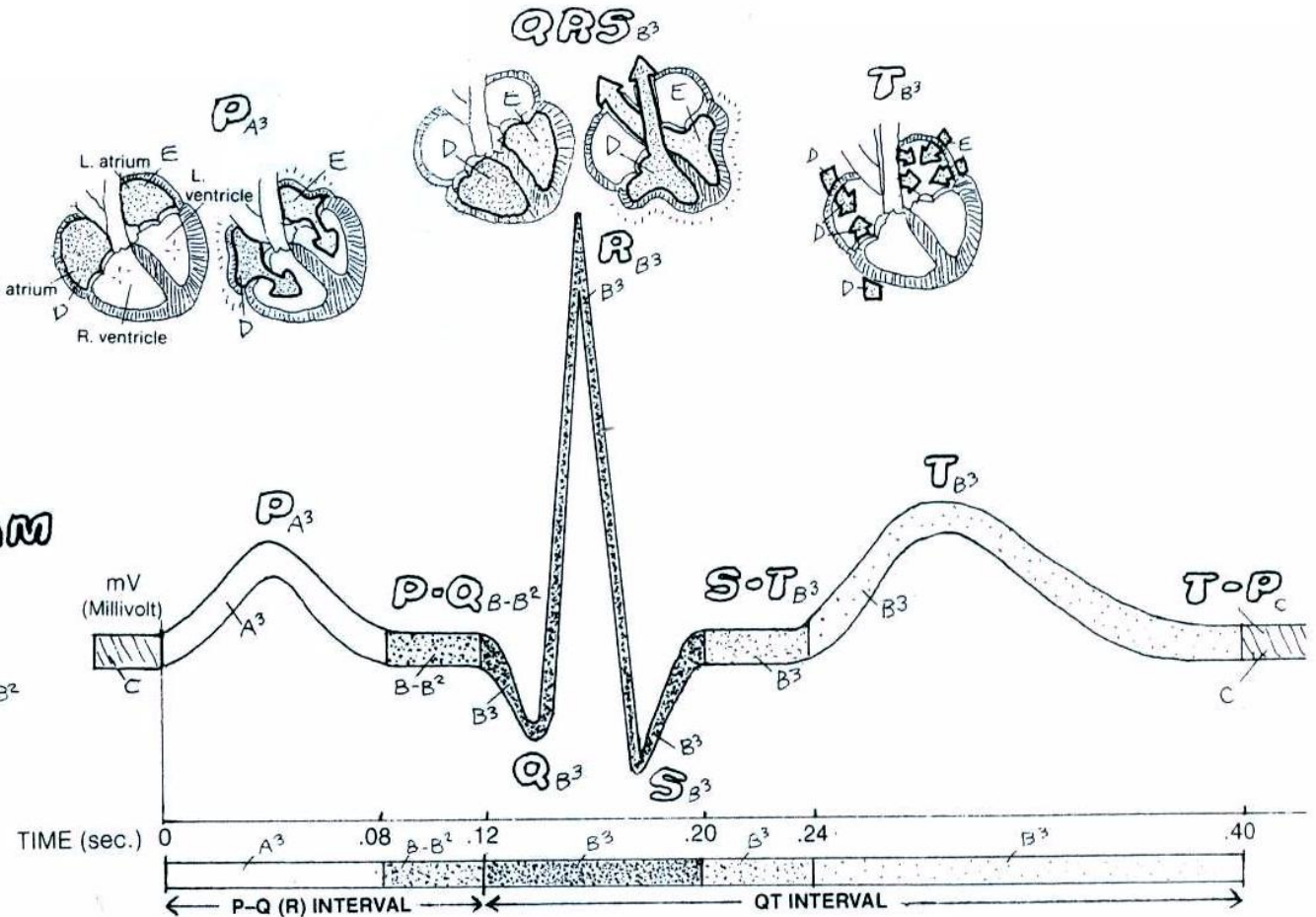
P-Q (P-R) SEGMENT $B-B^2$

QRS COMPLEX B^3

S-T SEGMENT B^3

T WAVE B^3

T-P SEGMENT C



The cardiac conduction system generates voltage changes about the heart, some of which can be monitored, assessed, and measured by *electrocardiography* (ECG). An ECG is essentially a voltmeter reading. It does not measure hemodynamic changes. Electrodes are placed on a number of body points on the skin. Recorded data (various waves of varying voltage over time) are displayed on an oscilloscope or a strip of moving paper. The shape and direction of wave deflections are dependent upon the spatial relationship of the electrodes (leads) on the body surface.

When the SA node fires, excitation/depolarization of the atrial musculature spreads out from the node. This is reflected in the ECG by an upward deflection of the resting (isoelectric) horizontal line (P wave). This deflection immediately precedes the contraction of the atrial musculature and filling of the ventricles. The P-Q interval (P-R interval in the absence of a Q wave) reflects

conduction of excitation from the atria to the Purkinje cell plexus in the ventricular myocardium. Prolongation of this interval beyond .20 seconds may reflect an AV conduction block. The QRS complex reflects depolarization of the ventricular myocardium. This complex of deflections immediately precedes ventricular contraction, wherein blood is forced into the pulmonary trunk and ascending aorta. The S-T segment reflects a continuing period of ventricular depolarization. Myocardial ischemia may induce a deflection of this normally horizontal segment. The T wave is an upward, prolonged deflection and reflects ventricular repolarization (recovery), during which the atria passively fill with blood from the vena cavae and pulmonary veins. The QT interval, corrected for heart rate (QTc), reflects ventricular depolarization and repolarization. Prolongation of this segment may suggest abnormal ventricular rhythms (arrhythmias). In a healthy heart at a low rate of beat, the P-Q, S-T, and T-P segments all are isoelectric (horizontal).