**Guyton:**

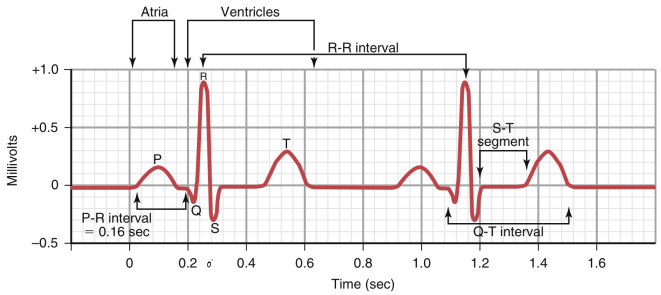
**1) When recording lead II on an ECG, the right arm is the negative electrode and the positive electrode is the:**

**A) Left arm**
**B) Left leg**
**C) Right leg**
**D) Left arm + left leg**
**E) Right arm + left leg**

**Ans: B**

**Questions 2 and 3 :**

**A 70-year-old woman had an ECG at her annual checkup. Use her lead II recording below to answer Questions 2&3.**




**2) What is her heart rate in beats per minute?**

**A) 70**
**B) 78**
**C) 84**
**D) 94**
**E) 104**

**Ans : A**

**3) According to Einthoven's law, if the QRS voltage in lead III is 0.4 millivolt, what is the QRS voltage in lead I?**

**A) 0.05 millivolt**
**B) 0.50 millivolt**
**C) 1.05 millivolts**
**D) 1.25 millivolts**
**E) 2.05 millivolts**

**Ans: B**

**4) What is the normal QT interval?**

**A) 0.03 second**
**B) 0.13 second**
**C) 0.16 second**
**D) 0.20 second**
**E) 0.35 second**

**Ans: E**

5) When recording lead II on an ECG, the negative electrode is the
A) Right arm
B) Left leg
C) Right leg
D) Left arm + left leg
E) Right arm + left leg

Ans: A

6) When recording lead I on an ECG, the right arm is the negative electrode and the positive electrode is the
A) Left arm
B) Left leg
C) Right leg
D) Left arm + left leg
E) Right arm + left leg

Ans : A

7) A 65-year-old man had an ECG at a local emergency department after a biking accident. His weight was 80 kilograms (176 pounds), and his aortic blood pressure was 160/90 mm Hg. he QRS voltage was 0.5 millivolt in lead I and 1.5 millivolts in lead III. What is the QRS voltage in lead II?
A) 0.5 millivolt
B) 1.0 millivolt
C) 1.5 millivolts
D) 2.0 millivolts
E) 2.5 millivolts

Ans: D

8) When recording lead aVL on an ECG, which is the positive electrode?
A) Left arm
B) Left leg
C) Right leg
D) Left arm + left leg
E) Right arm + left leg

Ans: A

9) A ventricular depolarization wave, when traveling −60 degrees in the frontal plane, will cause a large negative deflection in which lead?
A) aVR
B) aVL
C) Lead II
D) Lead III
E) aVF

Ans: D

10) A ventricular depolarization wave, when traveling 60 degrees in the frontal plane, will cause a large positive deflection in which of the following leads?

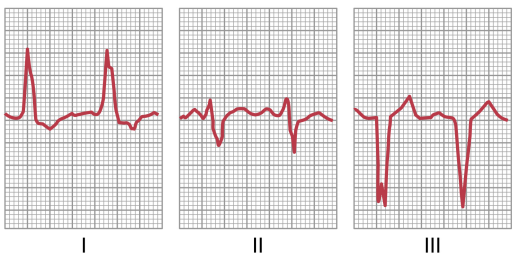
A) aVR
B) aVL
C) Lead I
D) Lead II
E) aVF

Ans: D

11) A 60-year-old woman had an ECG recorded at a local emergency department after an automobile accident. Her weight was 70 kilograms (154 pounds), and her aortic blood pressure was 140/80 mm Hg. Use this information and the figure below

What is the heart rate using lead I for the calculation?

A) 70
B) 88
C) 100
D) 112
E) 148




Ans: B

12)A 30-year-old man had an ECG at his physician's office, but his records were lost. he ECG technician remembered that the QRS deflection was large and positive in lead aVF and 0 in lead I. What is the mean electrical axis in the frontal plane?

A) 90 degrees
B) 60 degrees
C) 0 degree
D) −60 degrees
E) −90 degrees

Ans: A

13) A man had a myocardial infarction at age 55 years. He is now 63 years old. Use the standard limb lead I tracing on his ECG shown below

What is his heart rate?

A) 40 beats/min
B) 50 beats/min
C) 75 beats/min
D) 100 beats/min
E) 150 beats/min

Ans: E

14) A 55-year-old man underwent an ECG at an annual physical, and his net deflection (R wave minus Q or S wave) in standard limb lead I was −1.2 millivolts. Standard limb lead II has a net deflection of +1.2 millivolts. What is the mean electrical axis of his QRS?
A) −30 degrees
B) +30 degrees
C) +60 degrees
D) +120 degrees
E) −120 degrees

Ans: D

020:

15) The longest wave in ECG is:
A) P wave.
B) T wave.
C) Q wave.
D) R wave.
E) S wave.

Ans: T

16) The P wave of the ECG occurs at:
A) the beginning of atrial contraction.
B) the end of atrial contraction.
C) the beginning of ventricular contraction.
D) the end of ventricular contraction.
E) non of the above.

Ans: A

17) As regard the standard limb leads of ECG, lead II represents:
A) the potential difference between the left arm and the right arm.
B) the potential difference between the left leg and the left arm.
C) the potential difference between the left leg and the right arm.
D) non of the above.

Ans: C

18) The exploring electrode of V1 of unipolar chest leads of ECG is placed at:
A) fourth intercostal space at left sternal border.
B) fourth intercostal space at right sternal border.
C) fifth intercostal space at the midclavicular line.
D) fifth intercostal space at anterior axillary line.
E) fifth intercostal space at mid axillary line.

Ans: B

**19) Einthoven's law states that at any given movements the voltage in:**
**A) lead I equals the sum of voltage in lead II and lead III.**
**B) lead III equals the sum of LI and LII.**
**C) lead II equals the sum of LI and LIII.**
**D) lead I should equal lead III.**
**E) lead II should equal lead III.**

**Ans: C**

**20) At the horizontal axis of ECG paper, each millimeter represents:**
**A) 0.4 sec.**
**B) 0.04 sec.**
**C) 0.004 sec.**
**D) 0.01 sec.**
**E) 0.001 sec.**

**Ans: B**

**21) The P-R interval of ECG:**
**A) represents the conductivity of AV bundle.**
**B) has a duration that varies from 0.25 to 0.3 second.**
**C) is the interval from the beginning of P wave to the beginning of T waves.**
**D) all of the above.**
**E) non of the above.**

**Ans: A**

**22) Bipolar (standard ) limb leads;**
**A) measure the difference of electric potential between 2 limbs.**
**B) include a VL, a VR and a VF.**
**C) are represented by letter V.**
**D) are not sufficient to calculate the electrical axis of ventricular depolarization.**
**E) None of the above.**

**Ans: A**

**23) The principle of Einthoven's triangle has been based on:**
**A) Standard limb leads.**
**B) augmented limb leads.**
**C) Chest leads.**
**D) all of the above.**

**Ans: A**

**24) The ventricles are completely depolarized during which isoelectric portion of the electrocardiogram (ECG)?**
**A) S-T segment**
**B) Q-T interval**
**C) QRS complex**
**D) T wave**

**Ans: a**

**25) One has his electrical axis angle 119, which lead's angle is close to this?**
**A) aVF**
**B) aVF**
**C) lead II**
**D) lead III**

**Ans: D**

**26) Which one of the following is wrong:**
**A) QT interval =0.35s**
**B) PR interval =0.2s or greater**

**Ans: B**

**27) In an ECG, QRS of lead II was high and positive, and in lead aVL it was 0:**
**A) Mean axis degree is -30**
**B) Mean axis degree is +60**

**Ans: B**