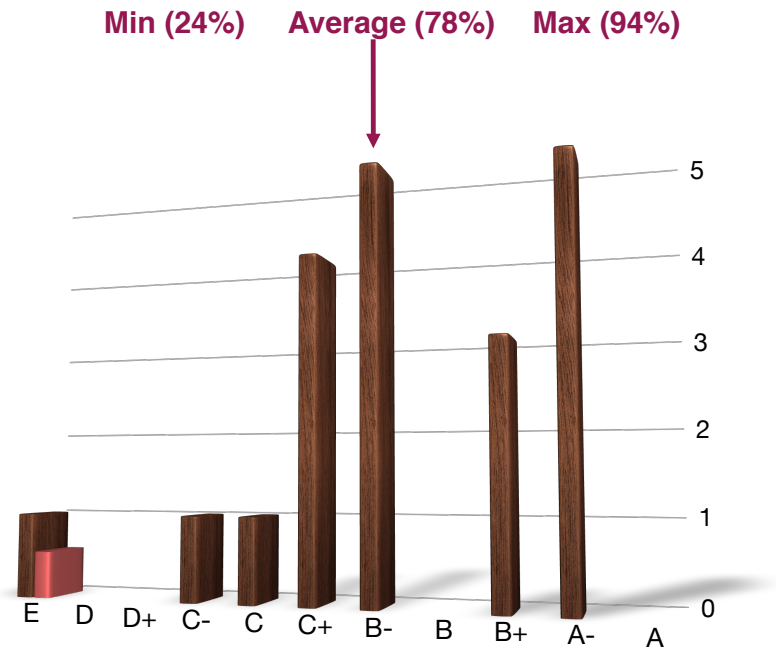
Comments on Midterm #1

Results

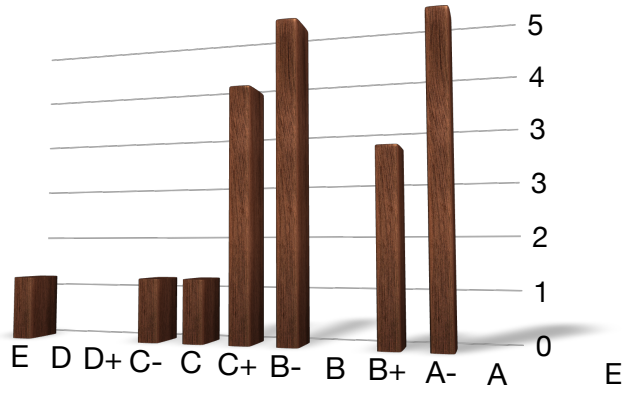
UGs Average: 82%
Grads Average: 76%

E 0%
D 50%
D+55%
C- 60%
C 65%
C+70%
B- 75%
B 80%
B+85%
A- 90%
A 95%

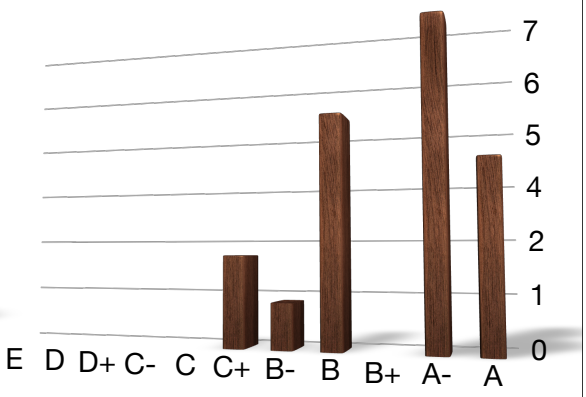


Results

2014 Results



2013 Results



True/False I

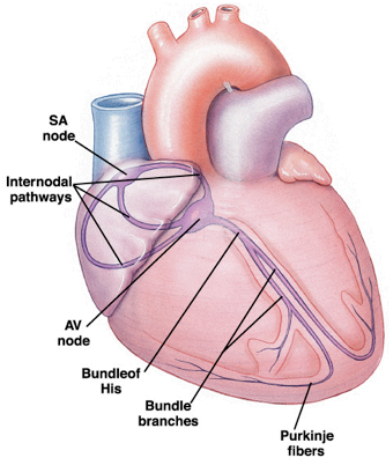
- 1. True
  - Cause of structure is usually impossible to prove.
- 2. False
  - There are many different electrode sizes
- 3. False
  - Goldmann-Hodgkin-Katz equation needed to predict resting potential; the key is permeabilities.
- 4. False
  - Ion specific (V_m - V_{eq})
- 5. False
  - There are MANY different K channels

True/False II

- 6. True
  - Local sensitivity and noise insensitive
- 7. True
  - See diagram

Electrophysiology of the Whole Heart

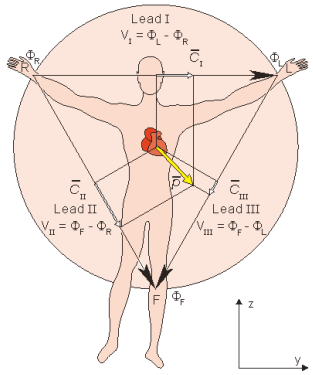
- Specialized Conduction system
  - sinoatrial (SA) Node
  - atrioventricular (AV) node
  - Purkinje system
- Pacemaker functions
  - SA Node
  - AV Node
  - Purkinje Fibers
- The Electrocardiogram (ECG)

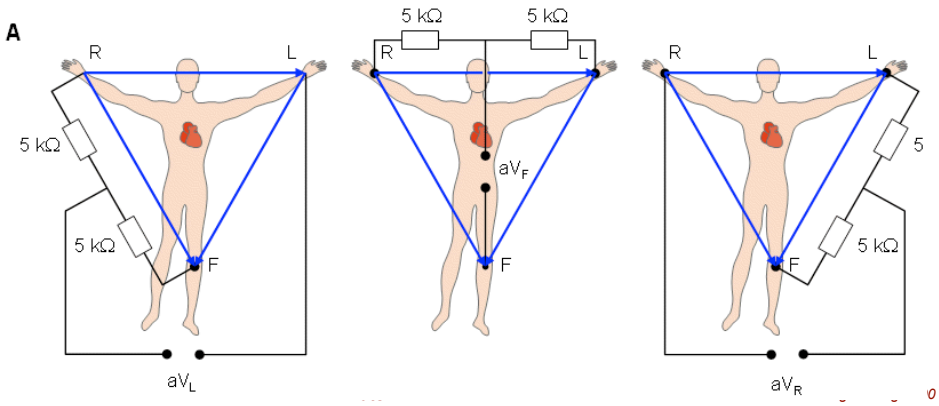


Cardiac Tissue

True/False III

- 8. True
  - Limb leads + Augmented Leads





True/False III

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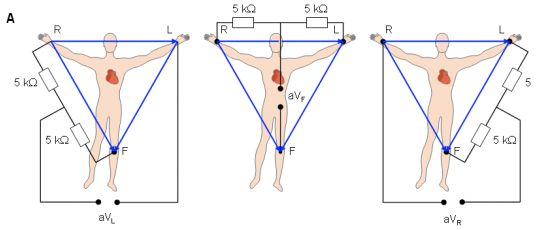
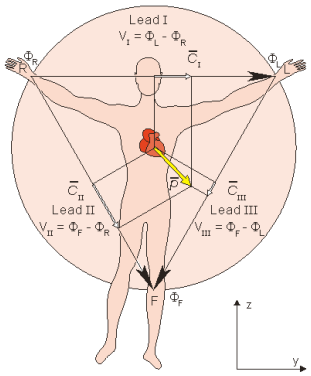
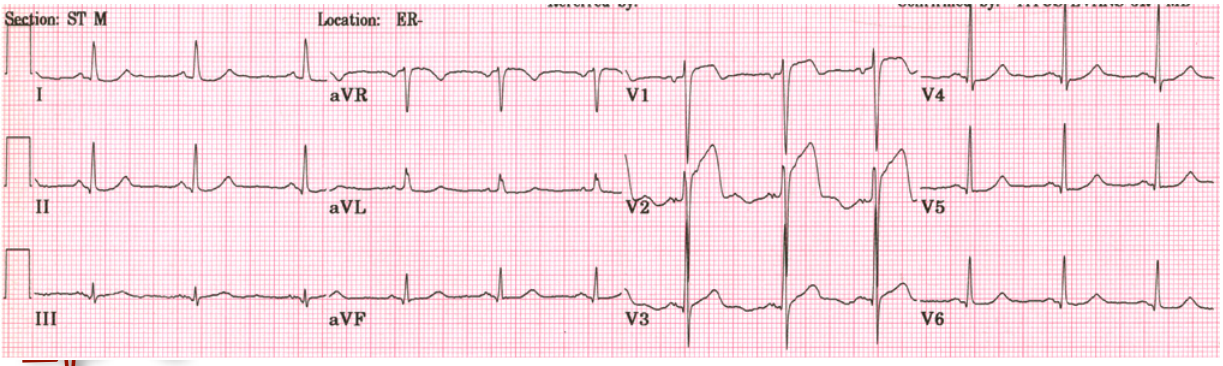
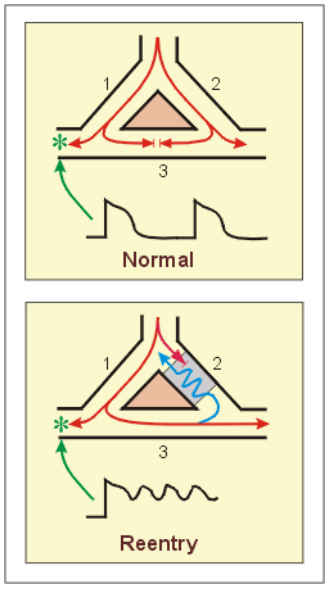






Arhythmias

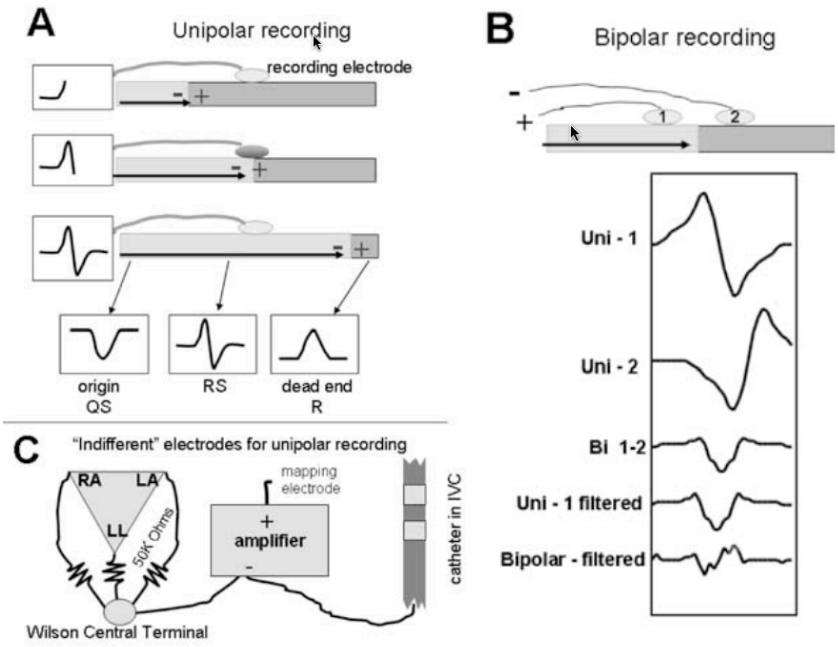
- Substrate
  - Abnormal tissue that might sustain reentry
  - Sustained ectopic focus
- Triggers
  - Single ectopic focus
  - Premature contraction



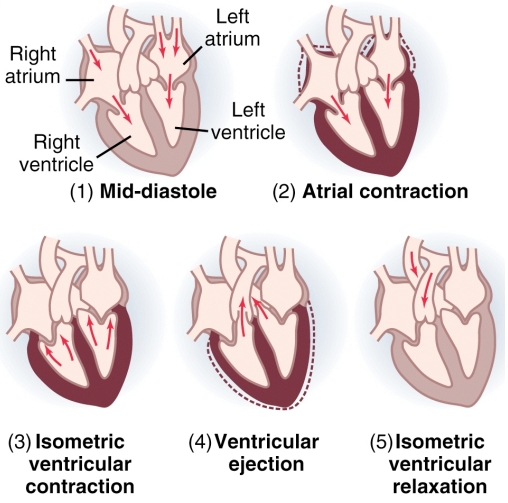
Carried but different ions (i.e., not just Na^+)

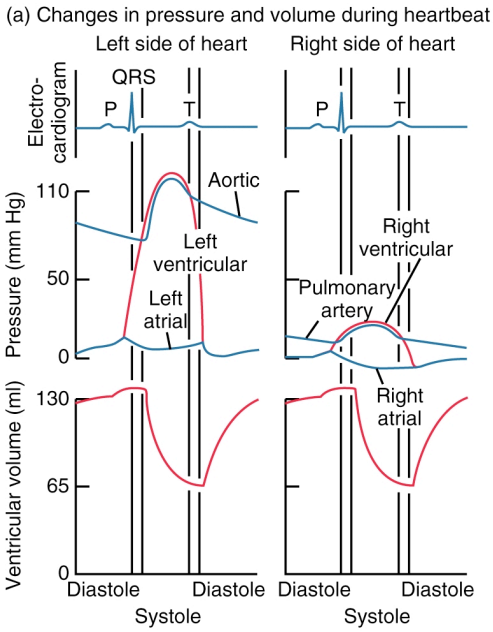
Unipolar vs. Bipolar

- Refers to "electrograms" from the heart
- Answer questions explicitly, by section:
  - a) How measurements made
  - b) Sensitivity
    - local vs. global
  - c) Applications
    - timing vs. source activity



Differences in Valve Types





Which valves are mostly open vs. mostly closed?
Are valves open under the same pressure conditions?

Take Home Messages

- True/False Questions
  - No substitute for hard work: cover all the material
  - Read and think carefully before answering
  - Write only what is relevant
- Essay Questions
  - Pay attention to what is asked
  - Make sure to cover descriptive phase of the question
  - Emphasize mechanisms
  - Back up conclusions or speculations; it is more important to make sense than to be correct
  - Use diagrams!!!
  - Give yourself space on paper!