

# ANP1106 Study Group #7

Week of Mar. 16<sup>nd</sup> - 20<sup>th</sup>, 2015

Study Group Leaders: Sadad, Rizwan & Julie

## HANDOUT

### Neurophysiology – Part I

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#### Neurophysiology Lecture 1:

Should be mostly review from ANP1105.

Review the key words below and be sure to have a solid understanding of each and how it relates to nerve conduction and/or cellular communication.

- Voltage
- Sodium-Potassium ATPase
- Primary Active Transport
- Membrane Potential
- Potassium leakage channels
- Neuron Structure
- Depolarization, Hyperpolarization, Re-polarization
- Action Potential
- Graded Potential
- Voltage-Gated Channels
- Exocytosis
- Cytoskeleton
- Synaptic cleft
- Neurotransmitters (Peptide, Amino Acid, Biogenic Amines, Acetylcholine)
- Ligand-Gated Ion Channels
- G-Protein Coupled Receptor
- Threshold, Summation
- IPSP, EPSP

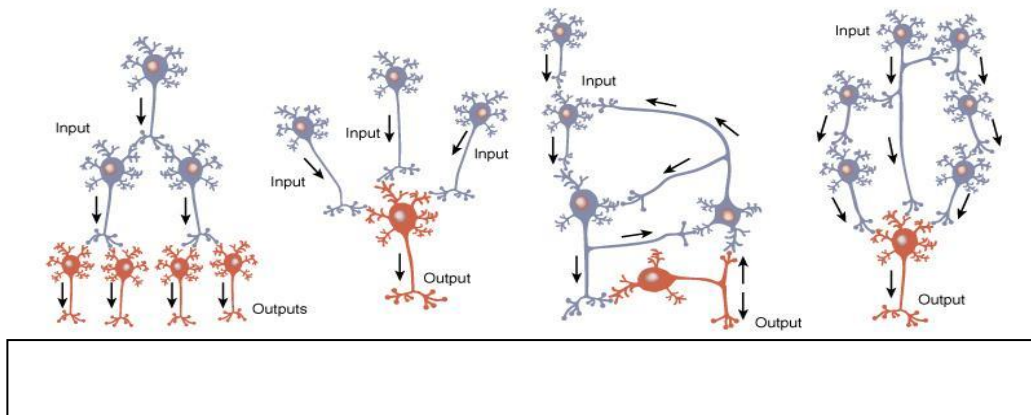
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## Neurophysiology Lecture 2

### 1. Label each circuit.



### 2. Distinguish between sensation and perception.

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### 3. Match the following.

- |                     |       |   |
|---------------------|-------|---|
| a. Thermoreceptors  | _____ | Respond to light energy.                                  |
| b. Mechanoreceptors | _____ | Sensitive to changes in temperature.                      |
| c. Photoreceptors   | _____ | Respond to chemicals.                                     |
| d. Chemoreceptors   | _____ | Respond to touch, pressure, vibration, stretch, and itch. |
| e. Nociceptors      | _____ | Sensitive to pain-causing stimuli.                        |

### 4. Which of the following is not characteristic of mechanoreceptors?

- a. they have channels with gates
- b. channels open when stretch or pressure is transmitted to the cell membrane.
- c. only respond to stimuli originating inside of the body.
- d. channels open to allow sodium entry and depolarization of the cell.

### 1. Receptors can be classified by all of the following except:

- a. Stimulus type
- b. Location
- c. Associated cell type
- d. Structure

### 2. Which of the following is not true of proprioceptors?

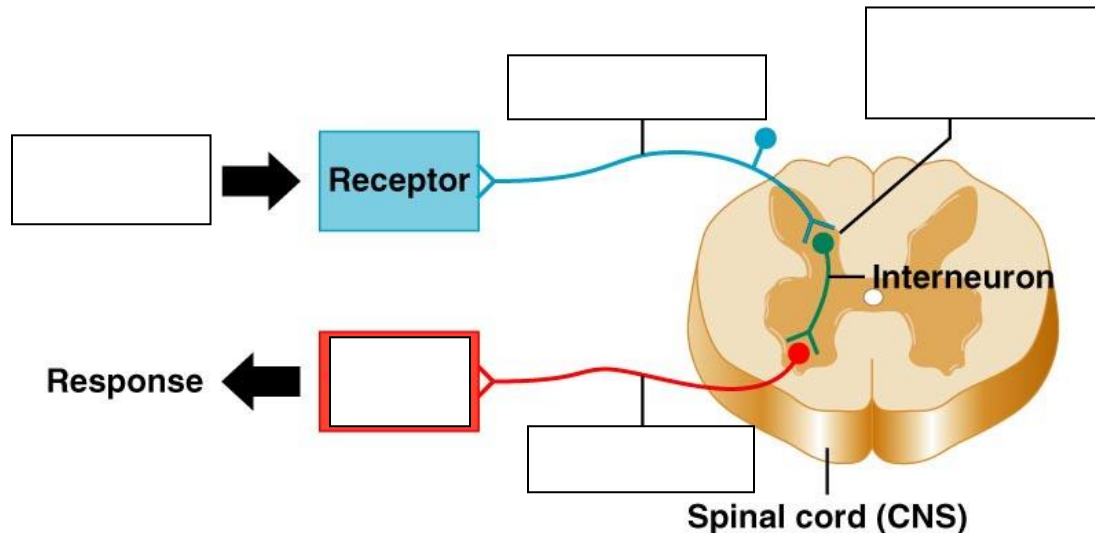
- a. They give information concerning movements and positions of the body
- b. They are found in skeletal muscles, tendons, joints, ligaments, and connective tissue covering of bones and muscles
- c. The muscle spindle is an example of a proprioceptor
- d. They respond to the degree of pressure on the organs they occupy
- e. None of the above

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3. Which of the following is not true of receptor classification based on receptor structure?
- Complex receptors are special sense organs in contact with a free nerve ending
  - Most receptors are complex and unencapsulated
  - Receptors are structurally classified as either simple or complex
  - Meissner's corpuscles are an example of an encapsulated sensory receptor
4. Label the following diagram.



5. Which of the following is false?
- Receptors responding to pressure, smell, and touch adapt quickly
  - Receptors that respond slowly include Merkel discs, Ruffini's corpuscles, and interoceptors that respond to chemical levels in the blood
  - Pain receptors and proprioceptors adapt slowly over time
  - Sensory receptors can be specialized endings of afferent neurons or separate cells that signal the afferent neuron
  - Nociception is the perception of stimuli that have the potential to produce damage
6. Which of the following is true about pain?
- Referred pain is when you feel pain from an internal organ as another area of the body
  - Sharp pain is carried out by the smallest myelinated sensory fibers, A delta fibers
  - Extreme stretching, ischemia, irritating chemicals, and muscle spasms can all contribute to visceral pain
  - Aching pain is carried slowly by small non-myelinated C fibers
  - A, C, D
  - All of the above

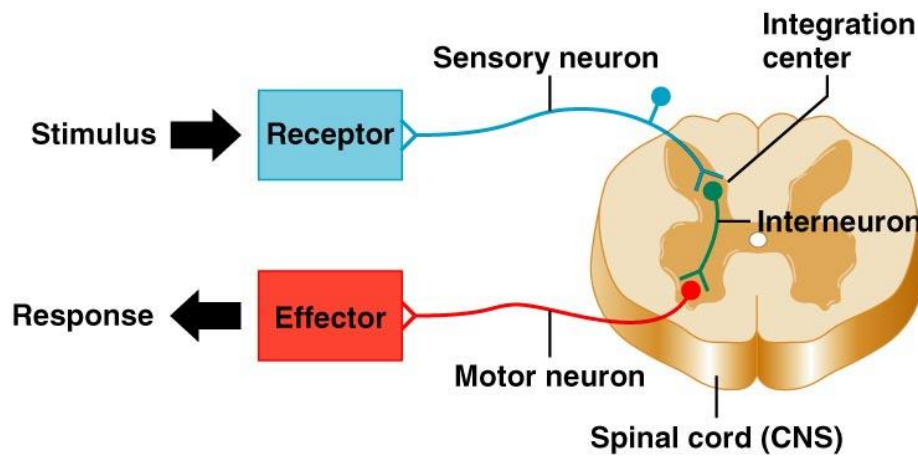
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## ANSWERS

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1. From left to right: diverging, converging, reverberating, parallel after discharge
  2. Sensation: awareness of changes in the internal and external environment  
Perception: conscious interpretation of that stimulus
  3. From top to bottom: c, a, d, b, e
  4. C.
  5. C.
  6. D.
  7. B.
  - 8.



9. C.
10. F