

Multiple Choice Questions

Time: 48 hours

Class Code. A  
/16502

Name/Class Rollno: ih\_tisham khan

Note:

- Attempt all questions from this section. Select the best answer from given choices.
- Use Blue / Black Ink only. Do not use red color.
- Tick or encircle only one option in each given question.

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*It's an open book Conceptual Assignment paper.  
Time to Use your brain now.*

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- A short Gap in the myelin sheath around a nerve fiber is called**
  - Dendrite
  - Axon terminal
  - Node of Ranvier
  - None of these
- The maximum amount of carbon dioxide in the human body is transported as:** \_\_\_\_\_
  - Bicarbonate
  - Carbide
  - Amylase
  - None of the above
- The lungs are protected by** \_\_\_\_\_
  - Ribcage
  - Sternum
  - Backbone
  - All of the above
- The three different cells found in the stomach**
  - Chief cells, renal cells, nephron
  - Renal cells, mucous cells, hepatic cells
  - Nephrons, hepatic cells, parietal cells
  - Chief cells, parietal cells, mucous cells
- For action potential to occur,**
  - The stimulus should reach or exceed threshold
  - Na<sup>+</sup> influx must exceed K<sup>+</sup> efflux
  - Both A & B
  - None of these
- During rising phase of action potential,**
  - Voltage gated Na<sup>+</sup> channels open
  - Voltage gated K<sup>+</sup> channels open
  - Voltage gated Na<sup>+</sup> channels close
  - Voltage gated K<sup>+</sup> channel close
- The movement of an esophagus to help the food down the GI tract** \_\_\_\_\_
  - Mastication
  - Emulsification
  - Peristalses
  - Ejection
- Simple diffusion is** \_\_\_\_\_.
  - Movement of molecules against the conc. gradient
  - Movement of molecules down the conc. gradient
  - Both A & B
  - None of these
- 97% of Oxygen is carried in blood from lungs is** \_\_\_\_\_
  - Bound to Sulphate ion
  - Bound to Hemoglobin
  - Dissolved in plasma
  - All of these
- Intrinsic factor secreted in stomach helps in**
  - Absorption of vitamin D
  - Absorption of vitamin K
  - Absorption of vitamin B12
  - Removal of vitamin B12

**Midterm Assignment(2020)**  
**Course Title: Basic Physiology (DT- 2nd) Instructor: Dr. Irfan Ali Khan**

Time: 72 Hours

Section 2

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Name: **...ihtisham khan**.....

Class/Roll.no **...16502**.....

Note:

- Attempt all questions from this section.
  - Use only Blue / Black Ink other than diagrams
  - Answer Briefly and to the point, avoid un-necessary details
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**1. Draw and Label the Action Potential in a large myelinated nerve fiber. Which ion channels are involved in its different stages?**

**Key points:**

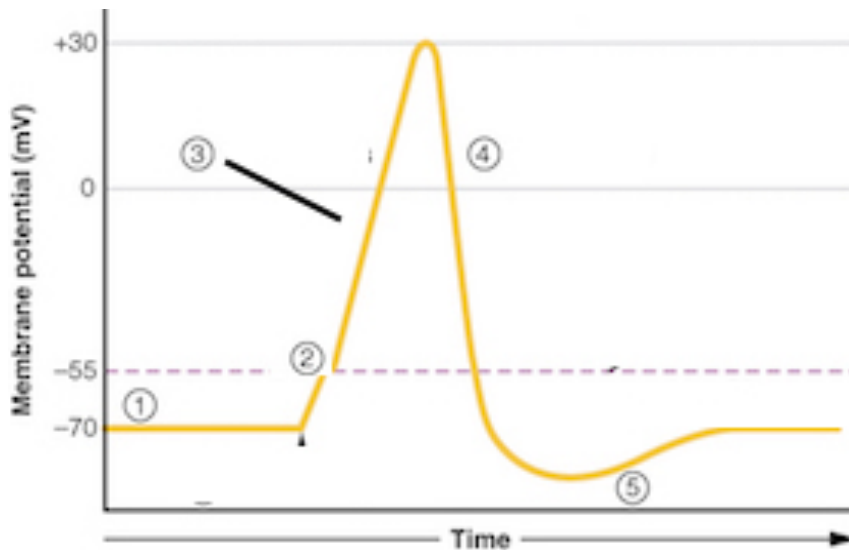
Draw

Label

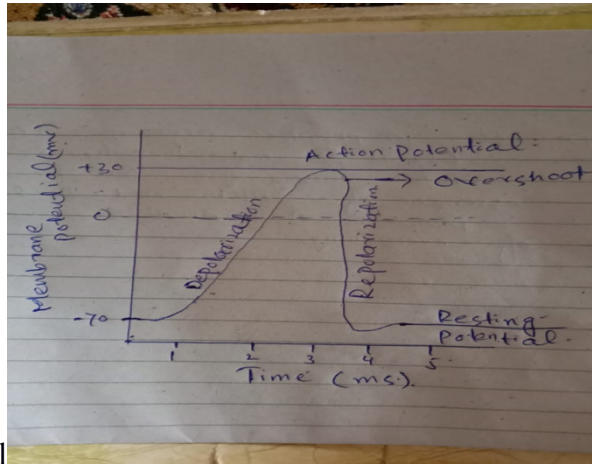
Ion Channels

Depolarization

Repolarization



**Ans:- Diagram and label**



- 1...Resting potential
- 2...Depolarization
- 3....Repolarization
- 4...ACTION SHOOT

channel in cell membrane causing action potential

1. voltage gated  $\text{Na}^+$  channels
  - . Activation gates
  - . Inactivation gates
2. voltage gated  $\text{K}^+$  channels
- 3 Slow  $\text{Ca}^+$   $\text{Na}^+$  channel

**1.Depolarization:-** The membrane become highly permeable to sodium ions & large amounts of Na ions move inside the axon. The polarized state of nerve will neutralize by influx of +ive ions, with the potential rising in +ive direction.This is called depolarization.

**2.REPOLARIZATION:-** Within a few milliseconds, the sodium channels begins to close and potassium channels open in large numbers.Rapid efflux of potassium ions to the exterior of nerve will restore the normal –ive membrane potential. This is called repolarization.

## 2. What is the role of oxygen, carbon dioxide and hydrogen ions in control of respiration? Marks 10

### Ans:- Role of oxygen:-

Oxygen is important to every cell in your body. oxygen through a process called oxidation. chemically changes food and liquid into energy. Its this oxygen fire that contracts our muscle, repair our cells, feeds our brain and even calms our nerve. Not only that but breathing is our body chief cleaning tool. without oxygen your cell cannot make energy, and their metabolism is less effective. without sufficient oxygen, we perform less efficiently.

### Role of carbon dioxide :-

In the human body, carbon dioxide is formed from the metabolism of carbohydrates, fats, and amino acids, in a process known as cellular respiration. it regulates the pH of blood, stimulates breathing, and influences the affinity hemoglobin has for oxygen ( $\text{O}_2$ ).

### Role of hydrogen ion:-

During cellular respiration in both mitochondria and aerobic prokaryotes, the Electron Transport Chain pumps  $H^+$  ions out of the matrix or cytoplasm to create a  $H^+$  concentration gradient. This forces the  $H^+$  ions back into the matrix or cytoplasm forcing ATP synthase into action.

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