

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



## MID | Lecture 1-4 + lab

## Past papers

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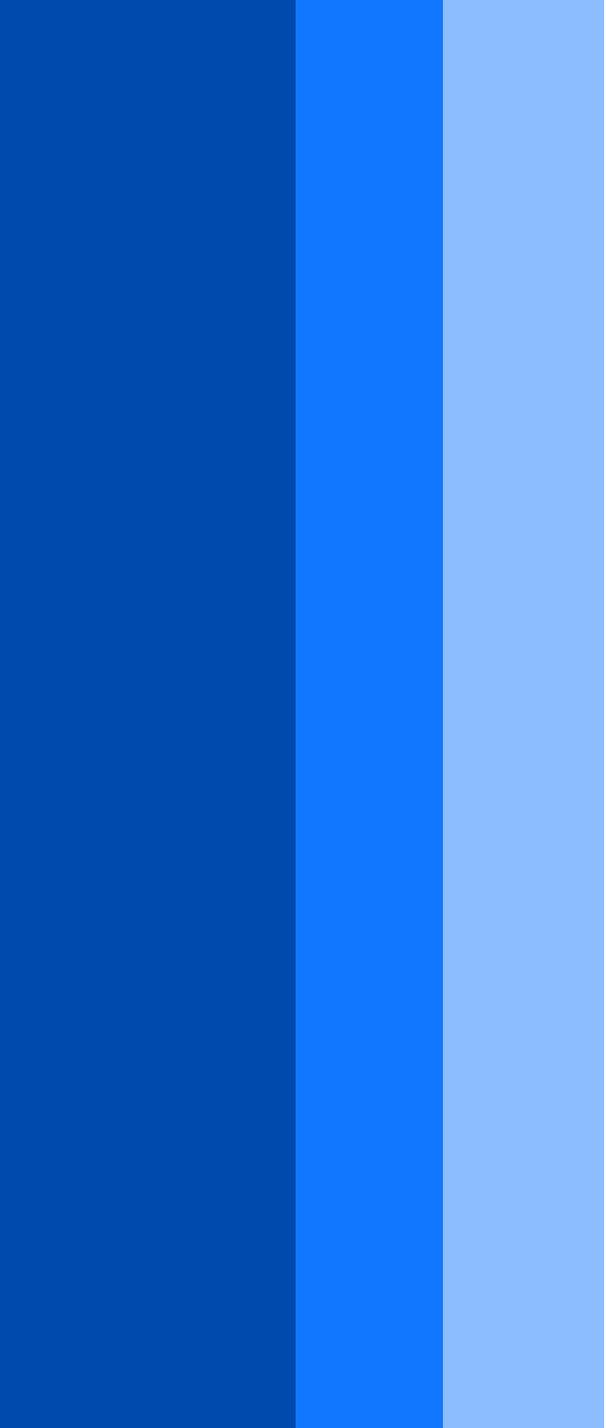
﴿ وَإِن تَتَوَلَّوْا يَسْتَبَدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَلَكُمْ ﴾

اللهم استعملنا ولا تستبدلنا  
إني لما أنزلت إلي من خير فقير



PHYSIOOLOGY





**Past papers**

Q1: The absolute refractory period of an action potential :

- a. is during the after hyperpolarization wave
- B. refers to the membrane potential at resting state
- C. coincides with the firing stage of an action potential
- D. coincides (at the same time) with the lowest activity of K<sup>+</sup> channels
- E. is mostly when Na<sup>+</sup> channels are closed and not capable for opening

?

Ans: c (e is false because Na<sup>+</sup> channels are inactivated not just close).  
(من أسئلة الدكتور محمد الخطاطبة)

Q2) • The followings are events during excitation contraction coupling : 1)generation of end-plate potentials 2)activation of chemical gated  $\text{Na}^+$  3)activation of voltage gated  $\text{Na}^+$  channels 4)release of  $\text{Ca}^{++}$  from sarcoplasmic reticulum

QUESTION: The sequence of events above in the correct order according to their appearance is:

- A. 2,1,3 and 4
- B. 3,1,4 and 2
- C. 1,2,3 and 4
- D. 3,2,1,and 4
- E. 2,1,4 and 3

Ans: a

Q3: Which of the following can strongly activate the Na /K pumps :

- A. High Cl outside the cell
- B. Low proteins inside the cell
- C. High phosphate outside the cell
- D. High Na inside the cell

Ans: d

Q4: All of the following contribute to the resting state of action potential **except**:

A. High concentration of Na outside the cell

B. More Na channel in plasma membrane than K channel

C. The selective permeability of plasma membrane doesn't allow for protein and ATP to leave the cell

D. Electrogenic nature of the Na / K ATPases

Ans: b

Q5: Which of the following is true about relative refractory period:

- A. Na<sup>+</sup> channels cannot open under any condition
- B. It precedes the absolute refractory period
- C. Na<sup>+</sup>/K<sup>+</sup> pump contributes to the relative refractory period
- D. A strong stimulus may cause an action potential during that period

Ans: d

Q6: The result that support the sliding filament theory more than the others:

- A. I band shortens
- B. A band stays the same during contraction
- C. Z disc will come closer to each other during contraction
- D. H zones will disappear at the maximum contraction

Ans: All options are correct, but the most accurate one is (B), while (C) is better if we want to focus on the sliding.

Q7: Which of the following pairs is mismatched?

A. Slow fibers - high blood supply

B. Slow fibers - small nerve fibers

C. Fast fibers – high sarcoplasmic reticulum

D. Fast fibers -- low ATPase activity

E. Fast fibers -- low myoglobin

Ans: d

Q8: Slow muscles are depending MOST for their energetics during their activity:

- A. Oxidative phosphorylation.
- B. Creatine phosphate reserves.
- C. Glycolysis.
- D. ATP reserves.
- E. Adenylate cyclase

Ans: a

Q9: Which of the followings is NOT involved in smooth muscle cells contractile mechanisms:

- A. Activation of voltage gated  $\text{Ca}^{++}$  channels at the sarcolemma
- B. Release of  $\text{Ca}^{++}$  from intracellular stores
- C. Activation of phospholipase C
- D. Interaction of actin and myosin
- E. Phosphorylation of calmodulin

Ans: e

Q10: Which of the following events does NOT occur at all in skeletal muscle during excitation-contraction coupling:

- A. Activation of voltage gated  $K^+$  channels at the sarcolemma
- B. Depolarization of the sarcoplasmic reticulum
- C. Activation of voltage gated  $Na^+$  channels at the sarcolemma
- D. Action potential at T tubules
- E. Binding of  $Ca^{++}$  to troponin C

Ans: b

Q11: Decreased generation of motor end plate potentials can be a result of all the following conditions EXCEPT:

- A. Depletion of chemical gated  $\text{Na}^+$  channels at the motor end plate
- B. Decreased generation of action potential by motor neurons
- C. Inhibition of chemical gate  $\text{Na}^+$  channels at motor end plate
- D. Blocking of acetyl-choline esterase at motor end plate
- E. Inhibition of nicotinic receptors at motor end plate

Ans: d

Q12: Which of the following is paired incorrectly?

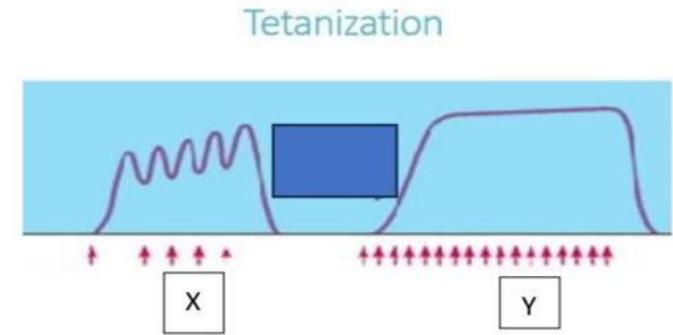
- A. Treppe effect – Frequency summation
- B. Rigor mortis: decreased ATP in the sarcoplasm.
- C. T tubules: transmission of action potentials
- D. Tetanization: frequency summation

Ans: a

## Physiology lab:

Q13: which of the following is incorrect:

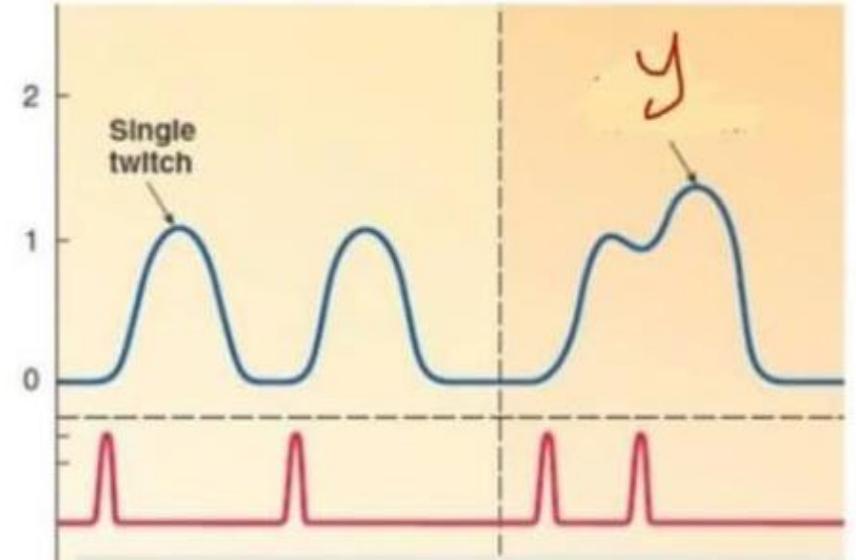
- A. Frequency of stimulation in Y is lower than X
- B. Frequency of stimulation in X is lower than Y
- C. Frequency of stimulation in Y is higher than X
- D. Y is complete tetanus
- E. X is incomplete tetanus



Ans: a

## Physiology lab:

Q14: which of the following statements is incorrect about the following graph:



Answer: to reach Y we must let the muscle relax

الحمد لله

For any feedback, scan the code or click on it.



Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

Additional Resources:

رسالة من الفريق العلمي:

لا إله إلا أنت سبحانك إني كنت من الظالمين