

Q1. Choose the right answer! All questions must be answered (25 marks):

During an action potential (stimulated state), the electrical potential changes from -1
.(approximately _____ (resting) to _____ (peak

- A. (+40) mV, (-70) mV
- B. (-70) mV, (+30) mV
- C. (0) mV, (-55) mV
- D. (-55) mV, (+70) mV

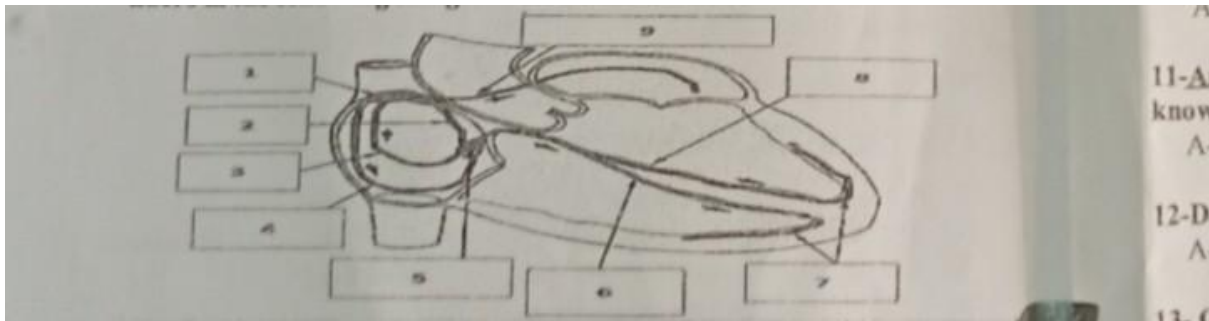
During the initial stage of stimulation (depolarization), which event causes the reversal of -2
?polarity across the axon membrane

- .A. Slower opening of potassium channels
- .B. Rapid influx of sodium ions (Na^+) into the cell
- .C. Rapid efflux of potassium ions (K^+) out of the cell
- .D. Active transport by the sodium-potassium pump

Which of the following is true regarding the threshold voltage required to initiate an action -3
?potential

- .A. It is the maximum charge achieved during an action potential
- .B. It is equal to the resting potential
- .C. It is typically around (-55) mV
- .D. None of the above

Find the numbers that represent the SA node, AV node, and Purkinje fibers in the -4
.following image



- A. 1, 5, 7
- B. 2, 6, 9
- C. 1, 7, 9
- D. 2, 4, 9

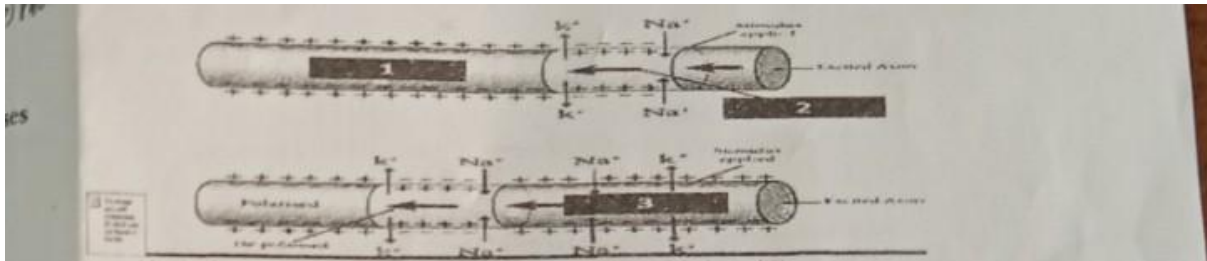
The form of cellular energy used to power muscle contraction is -5

- A. ADP
- B. ATP
- C. Enzymes
- D. Calmodulin

:Compared with skeletal muscle, smooth muscle contracts -6

- .A. Very slowly
- .B. Low use of ATP
- C. Inter in Latch state
- D. All the above

?What are the numbers that show depolarization and repolarization in the following figure -7



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

The types of muscle cells regulated by involuntary contraction are -8

- A- Cardiac, only
- B- Skeletal & smooth
- C- Cardiac & smooth
- D- All the above

:Nerves that transmit impulses to the effector organs are called -9

- A- Motor neuron
- B- Sensory neuron
- C- A and B
- D- None of the above

: Kidneys filter about _____ Litres of plasma every day -10

- A- 100
- B- 80
- C- 120
- D- 180

Artificial kidneys eliminate waste products from the body by a process known as -11

- A- Micturition
- B- reflexes
- C- urination
- D- dialysis

Death occurs when the number of nephrons falls below -12

- % A- 80
- % B- 30
- % C- 65
- % D- 5-20

One kidney is lower than the other kidney due to -13

- A- Heart
- B- stomach
- C- bigger
- D- liver

:Substances that do not enter the Bowman's capsules are the following, except -14

- A- RBCs
- B- urea
- C- Proteins
- D- WBCs

:Uricotelic animals are the following, except -15

- A- Fishes
- B- Snakes
- C- Birds
- D- Lizards

:The principal source of the excreted nitrogen is the..... of food -16

- A- Protein
- B- Fat
- C- Carbohydrate
- D- Vitamin

:_____ In the filtration step of urine formation, things pass from the _____ into the -17

- A- blood, filtrate
- B- blood, urine
- C- urine, blood
- D- kidney, filtrate

:The kidneys help in -18

- .A- Regulate blood volume
- ,B- Control blood pressure
- .C- Control PH
- D- All the above

?What are the three main steps of urine formation, in the proper order -19

- A- Excretion, secretion, filtration
- B- Filtration, reabsorption, secretion
- C- Filtration, secretion, excretion
- D- Reabsorption, filtration, excretion

:The muscular tissue arises from -20

- A- endoderm
- B- mesoderm
- C- ectoderm
- D- none of them

:Muscles of the digestive tract are from.....type -21

- A- cardiac muscle
- B- skeletal muscle
- C- smooth muscle
- D- striated muscle

appears in the form of a syncytium of one sarcolemma and a large -22

:number of nuclei

- A- Skeletal muscle
- B- Cardiac muscle
- C- Unstrained muscle
- D- Smooth muscle

:.....Neuroglial cells found in between neurons originate from -23

- A- neuroblasts
- B- neurons
- C- spongioblasts
- D- osteoblast

:are un-medullated nerve fibers -24

- A- Spinal nerves
- B- Cranial nerves
- C- a&b
- D- Sympathetic nerves

:Embryonic and retina of the eye have neuron type -25

- A- unipolar
- B- bipolar
- C- multipolar
- D- Purkinje

Q2. True or false! All questions must be answered (18 marks):

- 1.Epithelial Tissues Arise from all 3-germ layers.
- 2.The palatine glands secrete mucous.
- 3.The salivary glands are holocrine glands.
- 4.Epithelial Tissues can be modified.
- 5.Blood vessels are seen between the epithelial cells.
- 6.The epithelial tissues have the ability to regenerate.
- 7.The epithelial tissues produce germ cells.
- 8.Connective tissue originates from the ectoderm.
- 9.Plasma cells actively secrete histamine and heparin.
- 10.Macrophages can fuse to form foreign-body giant cells.
- 11.Connective tissue has a basement membrane.
- 12.Connective tissues have blood vessels.
- 13.Elastic fibers can stretch.
- 14.Fat cells have two types.

- 15. Ground substance is a solid, dark black.
- 16. Tendons attach muscle to bone.
- 17. Elastic fibres are made of pure bone.
- 18. Elastic fibers run in thick, wavy bundles.

:Q3. Write on the following

- (Role of Liver & Pancreas in Digestion. (5 marks .1
- (Heart Structure (illustrate your answer with a drawing). (5 marks .2
- (Cardiac muscle and Skeletal muscle. (2 marks .3
- (Multipolar neuron and its types. (2 marks .4
- (Classify the glandular epithelium according to the mode of secretion. (3 marks .5