Physiology-mid

Nabd 2019

لجنة الطب والجراحة

1) The respiratory center?

a) Is in the hypothalamus

b) Sends impulses to inspiratory muscles during quiet breathing

c) Sends impulses to expiratory muscles during quiet breathing

d) Is not involved in the cough reflex

e) Is not involved in the sneezing reflex

answer:b

2) Ion channels in the cell membrane may be?

a) Voltage gated channels respond to electrical activity of the membrane

b) Leakage channels which are closed continuously

c) Ligand gated ones which respond to mechanical stimulation

d) Gated channels opened continuously

e) All choices are correct

answer:a

3) Peripheral chemoreceptors are stimulated by?

a) Low 02 tension only

b) High Co2 tension only

c) High H+ only

d) equally sensitive to O2, Co2 tension and H+

e) more sensitive to hypoxia than Co2 tension and H+

answer:e

4) The first step in skeletal muscle contraction among the following occurs when?

a) Binding of Ca ions to troponin-C

b) Binding of Myosin head to actin cavities

c) Ca ions are released from the sarcoplasm

d) Kinking of Myosin head and shifting of actin between Myosin

e) Sliding of tropomyosin from the binding cavities of the actin molecules

answer:c

5) Calcium for smooth muscle contraction comes from all the following EXCEPT?

a) Mitochondria

b) Extra-cellular fluid

c) Sarcoplasmic reticulum

d) Cavea-olae (Stored calcium on the external surface membrane)

e) Neuromuscular cleft

answer:e

6) All the following are present in the smooth muscle EXCEPT?

a) Actin

b) Myosin

c) Troponin

d) Calmodulin

e) Myosin light chain kinase

answer:c

7) The peripheral protein present in the cell membrane mainly functions as?

a) Enzymes

b) Carrier

c) Pores

d) Channels

e) Cell adherence molecules

answer:a

8) In the intravascular compartment what is correct?

a) Water constitutes about 6 % of its total volume

b) The main cation is sodium

c) The main cation is potassium

d) Its volume is greater in old age than in infants

e) The greater portion of the total body water is present in this compartment

answer:b

9) The largest percentage of body water is in what compartment?

a) blood plasma

b) extracellular fluid

c) interstitial fluid

d) intracellular fluid

e) transcellular fluid

answer:d

10) How small particles trapped by bronchial epithelium are removed from the respiratory system?

a) Bulk flow

b) Diffusion

c) Expectoration

d) Phagocytosis

e) Ciliary transport

answer:e

11) Excitation contraction coupling involves all the following EXCEPT?

a) Activation of troponin I

b) Formation of cross bridges between actin and myosin

c) Spread of depolarization along the transverse tubules

d) Hydrolysis of ATP to ADP

e) Release of calcium ions from the endoplasmic reticulum

answer:a

12) What is correct about ADH?

a) causes aquaporins to be inserted into the proximal convoluted tubule

b) causes aquaporins to be inserted into the distal tubule and collecting ducts

c) increase urine volume

d) decreased concentration of urine

e) decrease the arterial blood pressure

answer:b

13) The rate of diffusion of a substance is directly proportional with all the following except?

a) The surface area between the two regions

b) The molecular size

c) The temperature

d) The concentration gradient

e) permeability of the membrane

answer:b

14) The ability of the kidney to excrete a concentrated urine will increase if?

a) the permeability of the proximal tubule to water decreases

b) the rate of blood flow through the medulla decreases

c) the rate of flow through the vasa recta increases

d) the activity of the Na-K pump in the loop of Henle decreases

e) the permeability of the collecting duct to water decreases

answer:b

15) An example of secondary active co-transport is?

a) Na+-K+ pump

b) Na+-H+ pump

c) Ca++ pump

d) Na+-Glucose transport

e) H+ pump

answer:d

16) All the nerves share with the same?

a) Nerve conduction velocity

b) Nerve diameter

c) Myelination

d) Length

e) Electrical transmission

answer:e

17) what is correct about the total body water?

a) Is equally distributed inside and outside the body cells

b) Is not important for regulation of the body temperature

c) Forms a smaller percentage of the body weight in fat persons

d) Its percentage tends to increase with age

e) its percentage is higher in females than males of same weight

answer:c

18) Endocytosis is defined as?

a) Means expulsion of substances from the cell

b) Includes cell drinking which is called phagocytosis

c) Includes cell eating which is called pinocytosis

d) Includes cell eating which is called phagocytosis

e) is a special type of passive transport

answer:d

19) With respect to body fluid compartments?

a) The concentration of sodium in intracellular fluid is greater than ECF

b) Extracellular fluid is divided into two compartments plasma and CSF

c) Total body water is 40% of body weight

d) Total body water is 90% of body weight

e) intravascular compartment has the least amount of water as relative to total body water

answer:e

20) The following statement about the local changes and action potential is true?

a) Action potential occurs under the cathode

b) Anelectrotonic potential shift the RMP toward the firing level

c) The local changes under the cathode are called anelectrotonic potential

d) The local changes are propagated response in the nerve

e) The local changes occur by opening of Na+ channels

answer:a

21) For every ATP molecule hydrolyzed by the Na+, K+ pump?

a) 2 Na+ ions are transported into the cell and 3 K+ ions are transported out of the cell

b) 2 Na+ ions are transported out of the cell and 3 K+ ions are transported into the cell

c) 3 Na+ ions are transported into the cell and 2 K+ ions are transported out of the cell

d) 3 Na+ ions are transported out of the cell and 2 K+ ions are transported into the cell

e) all choices are correct

answer:d

22) Protein is used in energy production of the muscle in the following condition?

a) Exercise

b) Obese subject

c) Diabetes mellitus

d) Diabetis insipidus

e) Newly born baby

answer:c

23) Which part of the kidney acts as counter current exchanger?

a) Glomerular capillaries

b) Peritubular capillaries

c) Vasa recta vessels

d) Afferent arteriole

e) Efferent arteriole

answer: c

24) In primary active transport energy is derived from?

a) ATP breakdown

b) Ionic concentration differences across two sides of cell membrane

c) Golgi apparatus

d) Counter transport of calcium and hydrogen ions

e) Co-transport of glucose and amino acids

answer:a

25) Which one of the following ions is the most abundant intracellular cation?

a) Sodium

b) Calcium

c) Potassium

d) Magnesium

e) Protein

answer:c

26) concerning the reabsorption of glucose in the kidney?

a) It is a passive process

b) It is accompanied by K absorption

c) It occurs mostly in the proximal convoluted tubule

d) It needs an antiport carrier

e) It does not show tubular maximum (Tm)

answer:c

27) The following help the smooth muscle RMP to be unstable?

a) There is no Na-K ATPase pump to push Na ion outside

b) There is in active K channels

c) There is less permeable cell membrane

d) Small size of the smooth muscle cell

e) Their nerve supply is an-autonomic nerve

answer:d

28) Which of the following statements is wrong?

a) The breaking point following breath holding is due to increased PCO2, and decreased PO2 in the arterial blood

b) The breaking point can be delayed by hyperventilation or breathing 100% 02

c) The breaking point is not affected by voluntary efforts

d) Sever hypoxia decreases the activity of the respiratory center

e) Hypercapnia leads to headache, confusion and may be narcosis

answer:d

29) osmosis is?

a) The process where water diffuses through equal concentrations

b) The process where water diffused across the cell's membrane from an area of lower to an area of higher concentration of

water

c) Where water diffuses across the cell membrane from area of higher to lower concentration of water

d) The process where a solute diffuses into water through membranous sacks not using energy

e) All choices are wrong

answer:c

30) Which of the following statements about cell membrane is correct?

a) Permeable membrane

b) protein forms a bilayer

c) Impermeable membrane

d) The cell glycocalyx enter in immune response

e) Ion channels are made of lipid bilayer

answer:d

31) The RMP is highest negative charge during?

a) Rest

b) Depolarization phase

c) Repolarization phase

d) Hyper-polarization stage

e) Firing point

answer:d

32) Which of the following channels is usually open during RMP of a nerve?

a) Voltage gated Na channels

b) Voltage gated K channels

c) Na+-K+ leakage channels

d) Voltage gated Na and K channels

e) Na+-K+ leakage and voltage gated K channels

answer:c

33) The following statement about sarcomere changes during contraction is true?

a) The I-band stay the same length (constant length)

b) The A-band is shortened

c) The Z-Z line is kept constant (same length)

d) The H zone will be shortened

e) The M line is shortened

answer:d

34) Filtration occurs in which part of the kidney?

a) Glomerular capillaries

b) Peritubular capillaries

c) Vasa recta vessels

d) Afferent arteriole

e) Efferent arteriole

answer:a

35) In a female with an attack of hysterical hyperventilation and then faints what will you expect to see in her blood analysis?

a) acidosis, decreased PCO2

b) acidosis, decreased pO2

c) alkalosis, decreased PCO2

d) alkalosis, elevated PCO2

e) hyperglycemia

answer:c

36) Facilitated diffusion is characterized by all the following except?

a) Needs a carrier

b) Have a maximum limit

c) Competitive inhibition among molecules transported with the same carrier

d) For lipid soluble large molecules

e) Is affected by temperature changes

answer:d

37) During inspiration?

a) The thoracic cavity increases in all dimensions

b) The internal intercostal muscles contract

c) The anterior abdominal wall muscles contract

d) The diaphragm is not flattened

e) swallowing is stimulated

answer:a

38) If aldosterone levels in the blood increases, which of the following ions will be excreted to a greater extent?

a) Potassium

b) Sodium

c) Chloride

d) Calcium

e) Bicarbonate

answer:a

39) Active transport is characterized by the following except?

a) Needs energy

b) Against concentration gradient

c) May be secondary type like Na+-K+ pump

d) May be co-transport like sodium-glucose transport

e) May be counter-transport like sodium-H+ transport

answer:c

40) Concerning the mechanics and muscles of respiration?

a) Expiration is normally an active process, b) The expiratory muscles act during rest

c) The internal intercostal muscles are important inspiratory muscles

d) The diaphragm is the only inspiratory muscle

e) The external intercostal muscles increase the anteroposterior diameter of the chest

answer:e

41) The nose serves all the following functions EXCEPT?

a) gas exchange

b) warming the air

c) cleansing the air

d) as a passageway for air movement

e) humidifying the air

answer:a

42) What is correct about the lipids in the bilayer of the cell membrane?

a) Has tails that are hydrophilic and directed out words

b) Has tails that are hydrophobic and facing each other

c) Has tails that are hydrophilic and directed out words

d) the heads face the interior of the cell

e) it forms a discontinuous layer around cell

answer:b

43) The axoplasmic flow in a nerve is?

a) Responsible for transmission of action potential

b) Has the same orthodromic direction in both motor and sensory nerve

c) Transport the neurotransmitters by antidromic direction

d) Transport the Na ions during action potential

e) Transport the nutrient by antidromic direction

answer:b

44) Cell volume is mainly dependent upon activity of?

a) Na glucose cotransporter

b) Na-k pump

c) glucose transporter

d) Na-Ca exchange

e) Na-H exchange

answer:b

45) About gated protein channels in the cell membrane all are true except

a) Closed by protein gate

b) If opened by potential changes, it is voltage gated channels

c) Gated channels are specific = allowing only one type of ions to pass

d) if opened by chemical changes it is ligand gated

e) it is opened all the time

answer:e

46) The following nerve cells can carry action potential EXCEPT?

a) Motor nerve cells

b) Sensory nerve cell

c) Inter-connecting neurons

d) Neuro-glial cells

e) Mixed nerve fibers

answer:d

47) The following statement about nerve damage is true?

a) Neuro-praxia is associated with loss of nerve membrane integrity

b) Neuro-praxia does not need surgical nerve repair

c) Neuro-praxia needs three months to be improved spontaneously

d) Neuro-praxia should be corrected surgically

e) Neuro-praxia means complete cut of nerve fiber

answer:b

48) The following statement about the strength duration curve?

a) Chronaxia is a minimal stimulus excites a tissue

b) Rheobase is a minimal time needed to excite the tissue

c) Rheobase is the same as the Chronaxia

d) All the excitable tissue has the same threshold

e) Chronaxia can be used to diagnose nerve disease

answer:e

49) The process by which macromolecules are transported to the inside of the cell in a vesicle containing ECF?

a) Exocytosis

b) Endocytosis

c) Pinocytosis

d) Phagocytosis

e) mitosis

answer:c

50) which part of the kidney acts as counter current multiplier?

a) Glomerular capillaries

b) loop of Henle of juxtaglomerular nephron

c) Vasa recta vessels

d) Afferent arteriole

e) Efferent arteriole

answer:b

51) One of the following statements about direction of the nerve transmission is true?

a) Transmission of sensory signals from the cell body to periphery

b) Transmission of motor signals from the periphery to the cell body

c) Transmission of sensory signals from the cell body to the receptor

d) Transmission of motor signals to the NMJ

e) Transmission of sensory signals from the CNS toward the dorsal root ganglia

answer:d

52) What is correct about cell membrane?

a) Thick and fibrous

b) Thin and non-elastic

c) Composed of proteins and lipids

d) Made up of carbohydrates only

e) Is freely permeable to glucose and urea

answer:c

53) Myelin sheath?

a) Present in all the nerve fibers

b) It help to increase the conduction velocity

c) Formed of successive wrappings of the membrane of Schwann cells

d) It causes of decrease in conduction of nerve impulse

e) It is increased in demyelinated diseases

answer:b

54) A cell is bathed is a solution that has a greater osmolarity than that of the cytosol. This solution is best described as which one of the following?

a) Isotonic solution

b) Hypertonic solution

c) Hypotonic solution

d) strong basic solution

e) strong acidic solution

answer:b

55) Increase in GFR occurs with which of the following?

a) Increased sympathetic stimulation

b) Decreased renal blood flow

c) Hypoproteinemia

d) Ureteric obstruction

e) severe hypotension

answer:c

56) The nerve which is affected by pressure, and has highest conduction velocity is?

a) Type A-alpha fiber

b) Type A-beta fiber

c)Type A-gamma filber

d) Types A-delta fiber

e) Type C-fiber

answer:a

57) Respiratory system regulates acid base balance via?

a) Bicarbonate reabsorption

b) Fomation of angiotensin

c) Changing the rate of respiration

d)release of ADH

e)release of erythropoietin

answer:c

58) The following statement is true about the refractory period?

a) Muscle refractory period is longer than that of the muscle

b)Nerve refractory period is wider than the action potential duration

c) The refractory period characterized by loss of the RMP

d) During the relative refractory period the nerve cannot be excited

e) During the absolute refractory period the tissue can be excited by high stimulus

answer:c

59) The following statement about heat production in the muscle is true?

a) Duning all types of relaxation there is no heat production

b)The maximum heat produced by the muscle is the activation heat

C) Activation heat depends on the amount of tension in the muscle

d) Shortening heat occurs during isometric contraction

e)Recovery heat is the maximum heat produced in the muscle

answer:c

60) What is corect about homeostasis?

a) allows for a wildly fluctuating internal environment

b)is impossible in vertebrates

C)is the maintenance of a stable intermal environment

d) refers to maintaining a stable extemal environment

e) All choices are correct

answer:c

"صِلني يا عظيم بكلّ ما يصِل بك، وحبّب إليّ ما حبب إليك، أسألك بأكرم لفظ، وأفصح لغة، وأتم إخلاص، وأشرف نيّة، إليك أصير، وإياك أؤمل؛ حبّب إليّ الخير واستعملني به، وكرّه إليّ الشر واصرفني عنه، إنك على كلّ شيء قدير."

- التوحيدي.

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مع أمنياتنا بالتوفيق والنجاح
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