Physiology

MIDTERM EXAM

WATEEN BATCH

إعداد:

1-Which of the following is NOT true regarding air- blood barriers? Select one:

a. A place where gas exchange occurs, Oxygen diffuses from air in alveolus to blood in capillary

b. A place where carbon dioxide diffuses from the blood in the capillary into the air in the alveolus

c. Phenomenally thin

d. The area is about 50 to 1 00 square meters enormous area

e. According to flicks law the diffusion rate across this barrier is very low

2-Which of the following sentence is Not true regarding exocytosis? Select one:

a. Does not require any extracellular signals like constitutive exocytosis

b. Most molecules travelling to the plasma membrane by constitutive exocytosis

c .Some exocytotic vesicles are incorporated into the plasma membrane (full vesicle fusion)

d. Some exocytotic vesicles return to the interior of the cell after their contents have been released

e. Releasing of neurotransmitters and hormones is a constitutive exocytosis

3-Name the disorders if you have Given the following values for arterial blood gas test (ABG); ABGs pH=7 PCO2=S0 mmHg HCO3=27 mEq/L? Select one:

a. Respiratory acidosis without renal compensation

b. Respiratory alkalosis with renal compensation

c. Metabolic acidosis with respiratory compensation

d. Metabolic alkalosis without respiratory compensation

e. Respiratory acidosis with respiratory compensation

4-Which of the following is NOT consistent with surfactant? Select one:

a. Type I cuboidal epithelial cells are scattered in alveolar walls

b. Decreases alveolar surface tension

c. Detergent-like substance

d. Premature babies - problem breathing is largely because lack surfactant

e. If the alveoli were lined with pure water without any surfactant, the pressure would calculate to be about 4.5times as greater

5-Which of the following matched pairs are NOT consistent with resting membrane potential? Select one:

a. Sodium and Potassium leakage channels - More potassium diffuse out than sodium diffuse in

b. The Interior of the cell - More negative compared to the outside

c. The action of sodium Potassium pump - Restore the resting membrane potential

d. Sodium and Potassium leakage channels - Active transport

e. Sodium Potassium pump - Requires 40° of body energy

6-Which of the following is NOT describing the Gain of the control system? Select one:

a. Measuring the effectiveness of the control system

b. The lower the error the higher 1he gain

c. Gain is equal to the correction value divided by error

d. The set point value is the normal value

e. If the value of the error is zero it means that the control system is not effective

7-Which of the following matched pairs are NOT correct? Select one:

a. Multiple sclerosis - The action potential starts to slow down and eventually cease along 1he myelinated nerve fibers

b. Neuromuscular junction - Chemical synapse at which nerve impulses triggers the excitation of skeletal muscle

c. Motor unit - Each single motor neuron and the muscle fibers it innervates

d. Fine graded precise movement - thighs and hips

e. Large weight bearing muscle- large numbers of motor units

8-Injected a patient with Mannitol concentration =500mg, after 2 hours of equilibrium the mannitol concentration in the blood plasma= 3.2mg/100ml and 10°a of injected mannitol is excreted in the urine calculate the extracellular fluid volume? Select one:

a.20L

b.30L

c.40L

d.60L

e.14L

9- Which of the following is NOT consistent with Arterial Blood Gas (ABG)? Select one:

a. Blood pH

b. Patients with critical care sitting

c. Acidemia above 7.35

d. Alkalemia above 7.45

e. pH Tower than 6.8 or higher than 8.0 death may occurs

10-Which of the following matched pairs are NOT true regarding function of renal system? Select one

a. Glomerulus filtration- From blood to 1he renal 1ubular lumen

b. Reabsorption - From Lumen of renal 1ubules to the peritubular capillaries

c. Secretion - Occurs in Loop of Henle

d. Juxtamedullary nephron - Glomeruli located near the medulla

e. Cortical nephrons - Short loop of Henle

11-Which of the following is NOT true regarding protein buffer? Select one:

a. Most plentiful buffer

b. Most extracellular

c. Plasma proteins

d. Hemoglobin can combine directly with CO2 to form carbamino compound

e. H+ can combine directly with hemoglobin

12-which of the following matched pairs are NOT true? Select one:

a. Bulk transport - Large materials or large quantities

b. Phagocytosis - Endocytosis

c. Pinocytosis - Cellular drinking

d. Clathrin-coated vesicle in cytoplasm - Uptake of HDL from blood stream

e. Lacking receptors mediated endocytosis – Hypercholesterolemia

13-Which of the followings is NOT related to the function of renal system? Select one:

a. Not effective in regulation of arterial blood pressure

b. Regulation of acid-base balance

c. Secretion of erythropoietin

d. Regulation of 1,25 -Dihydroxy vitamin D3

e. Gluconeogenesis

14-which one is NOT correct regarding action potential? Select one:

a. Short events in which membrane potential not dramatically changes

b. Short lasting reversal in the electrical polarity of the excitable cell

c. Only muscle and nerve cells can exhibit a reversal in electrical polarity

d. Starting point where it goes for being positive to negative outside

e. Starting point acts like a signal that can be conducting along 1he nerve and muscle fibers

15-Which of the following is true regarding simple diffusion across the cell membrane? Select one:

a. The solutes would move against the concentration gradient

’b. The osmolarity and the volume would be the same after the equilibrium

c. Cellular energy

d. The osmolarity would be the same but the volume would be changed after the equilibrium

e. Only water would move across 1he cell membrane

16-In an Exp the Mean blood pressure of an adult was decreased from 100 mmHg to 50 mmHg after 15 minutes the blood pressure came back to 75 mm Hg. Calculate the gain of this control system? Select one:

a. 1

b. 25

c. 30

d 100

e. 50

17-Which of the following matched pairs are NOT describing Active transport? Select one:

a. Sodium Potassium Pump -Many body cells

b. Calcium Pump - Membrane of sarcoplasmic reticulum

c. Potassium hydrogen Pump -Gastrointestinal cell membrane

d. Carrier protein - Acts as a channels

e. Moves the substances - Against their chemical or electrical gradient

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19-Hyperventilation leads to? Select one:

a. Respiratory acidosis

b. Respiratory alkalosis

c. Metabolic acidosis

d. Metabolic alkalosis

e. Respiratory compensation

20-If you added the following solutions to 1 L of water which one would have INCORRECT osmolarity value? Select one:

a.4 millimole of KCL= 8mosm/L

b.2 millimole CacI2= 8 mosm/L

c.5 miliimole of glucose = 5 mosm/L

d.150 millimole of Nacl= 300 mosm/L

e. 10 millimole of dextrose= 10 mosm/L

21-One of the following is related to Positive Feedback Mechanism? Select one:

a. Osmoregulation

b. Blood pH

c. Generation of action potential

d. Learning

e. Blood pressure

22-For a person weighs 70 kg which of the following is NOT correct? Select one:

a. Total Blood Volume = 5.6 L Approximately

b. Blood Plasma (of Total bodyweight) =55% multiplied by 70kg

c. Blood cells (of total blood volume) =45 % multiplied by 5.6L

d. Blood cells (of total blood volume) = 15% is Anemic

e. Blood cells (of total blood volume) = 65% is Polycythemia

23-Which of the following is NOT related to the function of the protein on the cell membrane surface? Select one:

a. Membrane buffer

b. Surface Protein - Peripheral

c. Channel down concentration gradient

d. Carrier protein against concentration gradient

e. Glycoprotein signaling

24-All the followings are consistent with passive transport EXCEPT? Select one:

a. Simple diffusion

b. Osmosis

c. Facilitated diffusion

d. Filtration

e. Cellular ATP

25-Which of the followings would decrease the diffusion rate across the cell membrane according to Ficks law? Select one:

a. The shorter the distance of diffusion

b. The smaller the size of molecules

c. Increasing 1he thickness of the cell membrane
d. The larger the difference of the concentration gradient
e. The larger the membrane surface area

26-Which of the following matched pairs are NOT related to the active transport? Select one:
a. Symport - Amino acids and glucose transport
b. Sodium and Potassium Pump - Primary active transport
c. Source of energy of secondary active transport - Energy developed by primary active transport
d. Antiport - Exchange of H+ and Na+ in renal tubules
e. Uniport - Simple diffusion

27-Regarding the transport from the LUMEN toward the BRUSH BORDER of the small intestine Which of the following matched pairs are NOT correct? Select one:
a. Glucose and galactose - Secondary active transport with Na+
b. Fructose – Facilitated diffusion
c. Simple Amino Acids - Secondary active transport with Na+
d. Di and Tri peptides - Secondary active transport with Na+
e. Short chain Fatty acids -Simple diffusion

28-All the followings are true regarding respiratory compensation EXCEPT? Select one:
a. Used to compensate for respiratory imbalances
b. The volatile acids can be eliminated from the lung
c. Respiratory takes several minutes to hours
d. Metabolic acidosis causes increase in rate and depth of ventilation
e. Metabolic alkalosis causes decrease in rate and depth of ventilation

29-Which of the following is NOT consistent with Facilitated Diffusion? Select one:
a. Channel mediated
b. Carrier mediated
c. simple diffusion
d. Used by ions
e. Used by very small water
soluble compounds

30-Which of the following is NOT true regarding Starling Force Law? Select one:

a. Describes the net filtration across the glomerular capillaries

b. Glomerular capillary hydrostatic blood pressure 60mmHg out

c. Plasma colloid osmotic pressure 32mmHg in

d. Bowmans capsular hydrostatic pressure 18mmHg in

e. Net filtration is equal to 10mmHg in

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32- One of the following is related to increase glomerular filtration rate? Select one:

a. Decreased renal blood flow

b. Decreased colloid osmolic pressure

c. Hemorrhage

d. Decreased capillary hydrostalic pressure

e. Edema

33-Which of the following matched pairs are NOT correct? Select one:

a. Phosphate buffer - Important in renal tubules

b. Phosphate buffer - Supply of buffer is unlimited

c. Bicarbonate buffer - Buffer capacity is so strong

d. Bicarbonate buffer - Regulated by respiratory regulation

e. Bicarbonate - Regulated by renal regulation

34-One of the following is NOT true regarding conducting zone? Select one:

a. Respiratory passages that carry air to the site of gas exchange

b. Bronchi

c. Bronchioles

d. Terminal bronchioles

e. Respiratory bronchioles

35-Regarding the tonicity which of the following sentence is Not true? Select one:

a. The total solutes in the fluid is called toniclty

b. The unit we used to quantify 1he toxicity Is osmoles

c. For each milll osmo of difference between intracellular and extracellular fluid this will create an osmotic pressure of 19.3 mmHg

d. The colloid osmolic blood pressure is about 20 mmHg

e. The value of 500mOsm/L is considered hypotonic solution

36-The followings show some values of different controlling systems in the body, which one is the most effective? Select one:

a. 5

b, 12

c. 10

d. 15

e.20

37-Which of the following can dissolve in lipid layer of the cell membrane? Select one:

a. H+

b. glucose

c. CO2

d. H2O

e. Na+

38-One of the following factors is NOT consistent with resting membrane potential? Select one:

a. GHK

b. Pumps of Sodium and Potassium

c. Gibbs and Donnan Polential

d. Leakage Sodium and Potassium channels

e. Ligand sodium channels

39- If you added the following solutions to IL of water which one would have INCORRECT osmolarity value? Select one:

a. 4 millimole of KCL= 8 mosm/L

b. 2 millllmole CacI2- 8 mosm/L

c. 5 millimole of glucose = 5mosm/L

d.150 millimole of Nacl= 300mosm/L

e.10 millimole of dextrose= 10mosm/L

40-which of the following matched pairs are not correct Select one:

a. Supra-threshold Stimulate more than action potential in one raw

b. Voltage gated sodium channels - Closed, Open, Inactivated conformation

c. Voltage gated sodium channels - Closed and inactivated states are ion impermeable

d. Activation/deactivation of Na+ voltage gated channels - The activation gates open

e. Inactivation/Open of Na+ voltage gated channels - Open the inactivation gates

41-Which of the following sentences is NOT true? Select one:

a. The extracellular fluid is divided into the interstitial fluid and the blood plasma

b. Transcellular fluid considered to be a specialized type of extracellular fluid

c. The Transcellular fluid includes fluid in the synovial and peritoneal space

d. Intracellular fluid equals 1/3 of Total body water

e. The Total body waler of persons weighs 70kg is approximately 42L

42-Which of the following matched pairs are NOT correct? Select one.

a. Bolulinum toxin A -Neuromuscular blockers

b. Botulinum toxin B – Prevent Ach release

c. Topical anesthesia - Neuromuscular blockers

d. General anesthesia -Neuromuscular blockers

e. Snake bite (Cobra) - Neu muscular blockers

43-Which of the following matched pairs regarding vol1age sodium gated channels are NOT correct? Select one:

a. Between inactivation and resting closed (recovery) - Inactivation gates re open and activation gate closes

b. Mutations that interfere with Na+ channel inactivation gates - Overexcited of nerve or muscle fibers

c. Closure of inactivation gate -Relative refractory period

d. inactivation gates open and activation gates close - Absolute refractory period

e. Voltage ga1ed Na channels ready to participate in second action potential - when the repolarization is starting

44-All the followings are related to metabolic compensation EXCEPT? Select one:

a. Used to compensate respiratory imbalances

b. Slower than respiratory compensation takes 12 to 24 hours

c. Changing the blood pH by changing the retention and secretion balance of bicarbonate and hydrogen ions

d. The nonvolatile acids eliminated from kidneys with urine

e. If the renal tubular cells is retained more HCO3 and secreted more H+ the blood pH would decrease

45-Which of the following is NOT consistent with Feedforward control? Select one:

a. Based on forecast result

b. Feedback control

c. Learning

d. Control of movement and balance

e. monitoring the external environment

46-Which of the following sentences is NOT true? Select one:

a. Secondary polycythemia caused by exposure to low oxygen such as living in high attitudes

b. When a person weighs 70kg, he approximately donates less than 1/10 of his total blood volume

c. When a person weighs 50kg, he approximately donates less than 1/10 of his total blood volume

d. If you lose 20°a of your total blood volume you may need a medical care attention

e. Primary polycythemia very rare: such as polycythemia vera

47-Which of the following matched pairs are NOT correct? Select one:

a. Gibbs Donnan potenlial - Electrochemical equilibrium on both sides of semipermeable membrane

b. Nernst equation - Equilibrium potential for one specific ion

c. Goldman Hodgkin Equation - Adequately explains living cells

d. Combination of Nernst and GHK equation - The equilibrium potential of specific ion gets closer to RMP When the permeability for that given ion increases dramatically

e. GNK- Thermodynamic system

48-Which of the following matched pairs are INCORRECT? Select one:

a. Pulmonary ventilation - Continuous replacement of gases in alveoli

b. External respiration - Gas exchange between blood and air at alveoli

c. Internal respiration - Gas exchange in capillaries between blood and tissue cells

d. Cellular respiration - O2 is used by the cells

e. Conducting zone - Site of gas exchange

49-One of the following is NOT component of cellular relay race? Select one:

a. Stimulus

b. Receptor

c. Integrating center
d. Effector
e. Feedforward control

50-Which of the following regarding the myelinated nerve fiber and 1he propagation along the myelinated fiber is NOT correct? Select one:
a. The action potential is 100m/sec in thickest myelinated nerve cell
b. The myelin sheath would decrease the myelinated nerve area thus decrease the velocity of action potential
c. Oligodendrocytes in CNS
d. Shawn cells are motor and sensory nerves in the peripheral CNS
e. The action potential along the myelinated nerve fiber is only occurring at the nodes of Ranvier

51-Which of the following is NOT related to blood chemical buffer system? Select one:
a. Bicarbonate buffer
b. Phosphate buffer
c. Protein buffer
d. First line of defense against blood pH shift
e. Including metabolic mechanism

52-Regarding blood transfusion which of the following is NOT correct? Select one:
a. Whole Blood transfusion increases iron levels in iron deficiency anemia
b. Plasma transfusions are used for patients with liver failure and serious burns
c. Platelets are a component of blood that stops the body from bleeding
d. Patients who have chemotherapy treatment like leukemia must get regular platelet transfusions
e. Regardless of the nature of the disease a person always needs whole blood transfusion

53-One of the following is NOT a part of a decreased body temperature Feedback Mechanism? Select one:
a. Decrease sweat production from sweat gland
b. Constriction of blood vessels in skin
c. Skeletal muscle shivering
d. Thermoreceptors sensors
e. Positive feedback mechanism

54-Which of the following is NOT consistent with neuromuscular junction? Select one:
a. Pre- synaptic membrane
b. Synaptic cleft

c. Post- synaptic membrane

d. Synaptic Knob

e. Sensory neuron

55- Which of the following matched pairs are NOT describing the Fluid Mosaic Model? Select one:

a. Cholesterol- Buffer

b. Increasing unsaturated fatty acids - Increasing Fluidity

c. Hydrophilic- Phosphates head

d. Hydrophobic - Fatty acid tails

e. Two phospholipids bilayers with phosphates head togelher

56-Regarding H+ elimination in renal tubules which of the following is NOT true? Select one:

a. Early proximal tubules -Accompanied with HCO3

b. Distal tubules and collecting duct - Accompanied by urine acidification

c. Ammonia secretion- Depends on activity of glutaminase which pH sensitive

d. H+ secretion In the early proximal tubules - Can eliminate significant amount of H+

e. Titralable acids in 1he renal tubular lumen - Secretion of Phosphate and ammonia with H+

57-one of the following Plasma protein that is mainly responsible for osmotic colloid pressure?

Select one:

a. Albumin

b. Alpha- globulins

c. Beta- globulin

d. Fibrinogen

e. Gamma- globulin

58-One of the following is NOT true regarding the intracellular fluid volume changes after equilibrium when infused different concentrations intravenously? Select one:

a. 30% NaCl is hypotonic would increase intracellular fluid volume

b. 0.9% NaCl is isotonic would not reduce intracellular fluid volume

c. 5% dextrose solution is isotonic would no1 reduce intracellular fluid volume

d. 0.45% NaCl is hypotonic would increase Intracellular fluid volume

e. Pure water is hypotonic would increase intracellular fluid volume

59-Which of the following matched pairs are NOT correct? Select one:

a. Depolarization - Opening of voltage gated sodium channels

b. Repolarization - Closure of sodium and opening of K+ voltage gated channels

c. Hyperpolarization - Voltage gated K+ Channels remains open after the potential reaches resting level

d. Threshold - Maximum point where the nerve fiber is enough to be stimulated

e. Subthreshold - Opening enough voltage gated Na+ channels to start ac1ion potential

60-All the followings describe homeostasis EXCEPT? Select one:

a. Allow baseline to be regained

b. Negative Feedback mechanism

c. Positive Feedback mechanism

d. Feedforward mechanism e. Static equilibrium