SAQ/MOD

Case1/ MOD

Steps of hemostasis :

1)Arteriolar vasoconstriction
2) Primary hemostasis: the formation of the platelet plug
3) Secondary hemostasis: deposition of fibrin.
4) Clot stabilization and resorption

Case2 /MOD

Enumerate cardinal signs of inflammation:

1.redness
2.swelling
3. heat
4. pain
5. loss of function

Case 3/ MOD

Enumerate Sequences of cell division :

1.G1 (pre synthetic growth)
2.S (DNA synthesis)
3.G2 (premitotic growth)
4.M (mitotic) phases
5.G0 state.

Case4/ MOD

Write predisposing factors of deep veins thrombosis

1.Immobility and bed rest.
2. Pregnancy and post-partum state.
3. Post-operative.
4.Severe burns.
5. Heart failure.
6.Disseminated cancer

Case 5 / MOD

Factors that impair tissue repair :

1. Infection
2. Diabetes
3. Nutritional status
4. Glucocorticoids (steroids)
5. Mechanical factors
6. Poor perfusion
7. Foreign bodies

Case 6/MOD

Enumerate the characteristics of tumor :

I. Rate of growth
II. Cancer phenotype and stem cells
III. Clinical and gross features
IV. Microscopic features
V. Local invasion (Direct spread)
VI. Metastasis (Distant spread

Case7/ MOD

Enumerate influences on virchow's triad :

1. endothelial injury
2. stasis or turbulence of blood flow

Case 8 / MOD

Enumerate complications of wound healing :

1. Infection of wound
2. Stich abscess
3. implantation (epidermal) cyst
4. Pigmentation
5. Deficient scar
6. Incisional hernia/wound dehisence
7. exuberant granulation/proud flesh
8. Hypertrophied scars and keloid formation

Case 9 / MOD

Write a short note about components of tumour :

1. Parenchyma: comprised by proliferating tumour cells; parenchyma determines the nature and evolution of the tumour.
2. Supportive stroma: composed of fibrous connective tissue

Case 10\ MOD

Write four examples of chronic inflammation

1. Ulcerative colitis
2. Crohn's disease
3.tuberculosis
4.leprosy

Case11/ MOD

enumerate systmetic effect of inflamation :

1.fever(pyrexia)
2.Acute-phase proteins

Case 12 / MOD

Characteristic features of chronic inflammation:

1.Infiltration with mononuclear cells
2.Tissue destruction
3.Attempts at healing by connective tissue replacement of damaged tissue

SAQ / CPS

1.Enumerate Causes of generalized edema:

Ans/1-Increased total extracellular fluid
-congestive heart failure.
-Renal failure.
- Liver disease.

2-High local venous pressure
- Deep venous thrombosis or venous insufficiency
-Pregnancy, • Pelvic tumor

3-Low plasma oncotic pressure/serum albumin
-Nephrotic syndrome.
- Liver failure
-Malnutrition/malabsorption

4-Increased capillary permeability
-infection/inflammation
-severe sepsis
-calcium channel blockers

2.Define non-pitting edema: non-pitting edema refers to swelling or fluid retention in body tissues that does not leave a visible indentation, or pit, when pressure is applied,its typical of lymphatic obstruction and may also occur as a result of excessive matrix depostion in tissues eg.hypothyroidism

3.Define fainting:its lightheadedness or premonitory symptoms before syncope(patient is going to have

4.Enumerate 5 risk factors of hyperbilirubinemia:

1-maternal diabetes
2-race (Chinese, Japanese, Korean, and Native American)
3-prematurity
4-drugs (vitamin K3, novobiocin),
altitude
5-21-trisomy

5.Short notes about Automatic nervous system:

- a component of the peripheral nervous system that regulates involuntary physiologic processes, It has two main branches:
1-the sympathetic nervous system, which activates the body's fight-or-flight response.
2-the parasympathetic nervous system, which promotes rest and digestion.
These branches work in a dynamic balance to regulate physiological function based on the bodys need.

6.couses of central cyanosis

1-Decreased arterial oxygen saturation
2-Decreased atmospheric pressure-high altitude
3-Impaired pulmonary function
4-Alveolar hypoventilation
5-Inhomogeneity in pulmonary
6-ventilation and perfusion (perfusion of
7-hypoventilated alveoli) 20/31
8-impaired oxygen diffusion
9-Anatomic shunts
10-Certain types of congenital heart disease
11- Pulmonary arteriovenous fistulas
12-Multiple small intrapulmonary shunts
13-Hemoglobin with low affinity for oxygen
14-Hemoglobin abnormalities
-Methemoglobinemia-hereditary,

7- Write short note about cynosis :

A/ Cyanosis refers to a bluish color of the skin and mucous membranes resulting from an increased quantity of reduced hemoglobin (i.e.,deoxygenated hemoglobin) or of hemoglobin derivatives (e.g., methemoglobin or sulfhemoglobin) in the small blood vessels of those tissues. It is usually most marked in the lips, nail beds, ears, and malar eminences

8-Define osteomalacia:

A/ osteomalacia is a metabolic bone disorder in audult ,characterized by the softening and weakening of the bones due to a deficiency in vitamin

9- List 5 causes of iron deficiency:

A/ • Chronic blood loss
• Increased demand
• Malabsorbtion of iron
• Inadequate iron intake
• Intravascular hemolysis and hemoglobinuria.

10-enumerate four cause of peripheral cyanosis:

A/ 1. Reduced cardiac output
2. Cold exposure
3. Redistribution of blood flow from extremities
4. Arterial abstraction
5. venous obstruction

11-Define syncope:

A/ Syncope : Transient episodic loss of consciousness with loss of postural tone due to cerebral or brain stem hypo perfusion.

MR

1.It may take up to one day for a phospholipid to move from one lamaella of a lipid bilayer to the other, while the same phospholipid may move an equivalent distance in the plane of the bilayer in 2.5 s.
How do you account for this difference in mobility?
Ans/ In the first case which is Flip-Flop, hydrophilic heads have to rotate through the hydrophobic region which is difficult and slow and need more energy.
While in the second case which is fast lateral diffusion, both the head and the tail of lipid move in the same medium (the same plane)

2. What is the role of cholesterol in the plasma membrane?
How does cholesterol decrease membrane fluidity at high temperatures and increase fluidity at low temperatures?
Ans/ The role of cholesterol is to stabilize fluid nature of the plasma membrane.
• At high temperature, the lipids will have high energy which will increase their movement and the fluidity will increase but cholesterol molecules will interact with other molecules, so decrease the movement) and fluidity of the membrane.
At low temperature, the energy is reduced and the libids are sta ched with each
other which produce the crystalline structure, but cholesterol bulk molecules will prevent the stacking and increase fluidity.

3. In which way the membrane transport processes contribute in the regulation of intracellular PH ?
Ans/ *Acidification can be opposed by expelling H+ ions or the inward movement of bicarbonate ions.
*Alkalinisation is opposed by expelling bicarbonate via the anion exchanger.

4. Resting cell membranes are selectively permeable to K+. Given the concentration gradient that exists across the plasma membrane, which direction would you predict that K+ ions will move?
Ans/ [K]in= 160 mM| [K]out = 4.5 mM
The K+ ions will flow outward because its concertation inside the cell is more than in outside

5. Describe structure and function of the receptor proteins?
Ans/
Function/
1.Signaling by hormones and local chemical mediators
2. Neurotransmission
3.Cellular delivery (low density lipoprotein, transferrin)
4.Control of gene expression (steroids, thyroid hormones),
5.Release of intracellular calcium stores (Inositol 1,4,5-trisphosphate receptors)
6.Immune responses
Structure/ Receptor proteins typically consist of extracellular, transmembrane, and intracellular domains.

6.What are the principles of receptor mediated endocytosis?
Ans/ Specific binding of molecules to cell surface receptors permits the selective uptake of substances into the cell.

7.Describe basis of all or nothing law and refractoriness term in change permeability :
Ans/An action potential occurs when the membrane depolarises to a certain threshold, if this

threshold is not reached the action potential will not be triggered. This is referred to as the all-or-nothing principle

8. Describes the characteristics of ligand gaited ion use nicotinic Ach receptor as an example ?

Ans/ 1. Selectivity
2.gaiting
3. A high rate of ion flow that is always down the electrochemical gradient.
When acetylcholine binds to its extracellular domain, the receptor undergoes a conformational change, allowing the influx of sodium ions and efflux of potassium ions, leading to membrane depolarization and transmission of nerve impulses. This process is crucial for neuromuscular communication.

9. Describe action potential associated changes in membrane ionic permeability :

Ans/ Action potentials:

- Change in voltage across membrane
- Depends on ionic gradients)and relative (permeability)
- Only occurs if a threshold level is reached
- All or nothing
- propagated without loss of amplitude

During an action potential, there are distinct changes in membrane ionic permeability. Initially, voltage-gated sodium channels open, allowing an influx of sodium ions, leading to depolarization. This rapid change in membrane potential triggers the opening of voltage-gated potassium channels, resulting in potassium efflux, contributing to repolarization. The sodium-potassium pump then restores the ionic balance by actively transporting sodium out and potassium in, returning the membrane to its resting state.

10. What is mechanism of regulate cell volume?

Ans/ Cells extrude ions in response to cell swelling and influx ions in response to cell shrinking. Water follows.

11.define mechanism of fast synaptic transmission:

Ans/ In fast synaptic transmission, the receptor is also a ligand-gated ion channel

CVS

Q1/ Describe what is meant by 'laminar' and 'turbulent' flow:
A/ There are two ways in which fluid flows through tubes :
1. Laminar Flow : Most flow in the circulation is laminar.
2. Turbulent Flow: Turbulent flow generates sound.
In laminar flow adjacent layers of fluid are moving along the tube at different velocities, and must slide over one another.

Q2/ What are the types of blood vessels? Write on their function?
A/ 1. Artreries : (distribution) Carrying blood away from the heart
2. Veins :(capacitance) carrying blood toward the heart
3. Capillaries :exchanges oxygen and nutrients between blood and tissues.

Q3/ Define endocardial cushion,AV canal and septation:
A/ endocardial cushions: refers to a subset of cells that form either in the av canal or in the truncus arteriosus and has an important role in dividing heart into right and left sides and in producing the outflow tract.
septation: the primitive heart tube becomes divided into chambers and the outflow tract is subdivided into pulmonary trunk and aorta.
AV canal: the junction between the atrium and ventricle becomes constricted creating a narrow channel called the atrioventricular canal, This narrowing provides a framework by which the inter-atrial and inter- ventricular septa are formed.

Q4/ write short note on the structure and function of arterioles?
A/ Arterioles : they consist of three layers: an inner endothelial layer, a middle smooth muscle layer, and an outer connective tissue layer.
Function : whose function is to regulate the amount of blood reaching an organ or tissue and more generally in regulating blood pressure.

Q5/ Effect of venous return on output :
A/ Rise in venous return will increase cardiac output.
Fall in venous return will decrease cardiac output.

Q6/ Effect sympathetic and parasympathetic on the heart:
A/ An increase in sympathetic flow to the heart will increase heart rate (beyond 100bpm) and the force of heart contraction .
An increase in parasympathetic flow to the heart will decrease heart rate (about 60bpm).

Q7/ Describe anatomy of heart valves and their functions?
A/ 1. Mitral valve : is located between left AV
2. Tricuspid valve: is located between right AV
3. Pulmonary valve :is located between right ventricle and pulmonary artery
4. Aortic valve : is located between left ventricle and aorta
Function : direct blood flow in a forward direction and prevent backward leakage.

Q8/ Write short note on heart boundaries :
A/ 1- The right border is formed by the right atrium and the superior and inferior venae cavae.

2- The inferior border is formed by the right ventricle.
3- The left border is formed by left ventricle and a portion of the left atrium.
4- The superior border is formed by both atria.

Q9/ what are the components of TOF?
A/ Tetralogy of fallot consists of four components:
1-pulmonary stenosis
2-RVH
3-VSD
4-overriding aorta

Q10/ what causes mitral valve and tricuspid to close?
A/ When the pressure in the ventricles exceeds the pressure in the atria and thus the atrioventricular valves shut.

Q11/ Write a short note about tetralogy of fallot (TOF).
A/ TOF is the most common cyanotic heart disease,it consists of four abnormalities:
1-pulmonary stenosis.
2-VSD.
3-RVH
4-overriding aorta.
-Signs include:
cyanosis,murmur,squatting and spells.
-treatment ncludes:
Oxygen,beta blocker,general anesthesia, morphine,holding the baby in a knee chest position.

Q12/ Enumerate the types of AV blocks and write on each one briefly:
A/ 1. First-degree AV block: PR interval > 200 ms.
2. Second-degree AV block:
- Mobitz type I: PR progressively prolongs until QRS drops.
- Mobitz type II: QRS suddenly drops without PR change.
- 2:1 AV block: Alternating drop of one QRS complex.
3. Third-degree or complete AV block: No P wave is conducted, ventricular rhythm takes over.

Msk - mcq

Which of the following is NOT a branch of the posterior cord of the brachial plexus?
a. upper and lower subscapular nerves
b. thoracodorsal nerve
c. axillary nerve
d. radial nerve
e. long thoracic nerve
Correct answer: e

Which of the following is true in respect to the anatomical snuff box?
a. It is bounded anteriorly by the tendons of the extensor pollicis longus
b. It is bounded posteriorly by the tendons of the abductor pollicis longus and extensor pollicis brevis
c. the radial artery lies in the floor of the snuff box
d. the scaphoid and triquetrum can be palpated within the snuff box
e. the snuff box is visible when the thumb is
fully flexed.
Correct answer: c

The recurrent branch of the median nerve does NOT innervate which of the following?
a. abductor pollicis brevis
b. adductor pollicis
c. flexor pollicis brevis
d. opponens pollicis
e. the recurrent branch of the median nerve innervates all of the above
Correct answer: b

Syndactylyl involves:
a. extra fingers or toes.
b. absence of a digit or limb.
c. abnormal fusion of fingers and toes.
d. small hands or feet being attached to trunk by short bones instead of long bones
e. congenital dislocation of glenohumeral joint
Correct answer: c

Which of the following statements best describes the scapula?
a. It usually overlies the 2nd to 9th ribs
b. the spine continues laterally as the coracoid process
c. The suprascapular notch is found on its spine
d. It provides attachment for both heads of biceps
e. most fractures involve the body
Correct answer: d

Which of the following statements regarding the radius and ulna is correct?
a. both have a styloid process at the proximal end.
b. both articulate with the humerus at the elbow joint.
c. both articulate with the carpal bones at the wrist joint.

d. direct injury usually produces transverse fractures of both bones in the distal third.
e. fracture is most commonly of the Smith's type.
Correct answer: b

Which of the following is true of the rotator cuff?
a. Teres major is one of its four constituent muscles
b. Infraspinatus is innervated by the suprascapular nerve
c. Part of its action is to pull the humeral head superiorly
d. Subscapularis inserts onto the greater tuberosity of the humerus
Correct answer: b

Select the most appropriate ending for the following sentence, The median nerve:
a. arise from both the posterior and medial cords of the brachial plexus.
b. passes from the medial to the lateral side of the brachial artery in the arm
c. gives no muscular branches in the arm
d. enters the forearm by passing between the two heads of flexor carpi ulnaris e. supplies all of flexor digitorum profundus.
Correct answer: c

Which statement considering the relations of nerves to the humerus is the most accurate?
a. The axillary nerve runs around the anatomical neck
b. The median nerve runs in the spiral groove
c. Mid-shaft humeral fracture will usually result in complete paralysis of triceps
d. The ulnar nerve is related to the lateral epicondyle
e. Deltoid may atrophy following shoulder dislocation
Correct answer: e

The medial and lateral malleoli articulate with which of the following bones?
a. femur
b. calcaneus
c. talus
d.cuboid
e.fibula
Correct answer: c

All of the following statements concerning the sartorius muscle are correct EXCEPT:
a. It is known as the "tailor's muscle."
b. It is the longest muscle in the body
c. It acts across two joints
d. It extends the hip
Correct answer: d

All of the following statements concerning the femoral triangle are correct EXCEPT:
a. Its superior border is the inguinal ligament
b. Its lateral border is the sartorius
c. It is bisected by the femoral artery and
d. the saphenous nerve passes through the femoral triangle
e. Its medial border is the adductor magnus
Correct answer: e

All of the following statements concerning the gluteus maximus are correct EXCEPT:

a. It is used very little during casual
walking
b. It assists in making the knee stable
c. It is used very little in climbing upstairs
d. It is used in running

e. It is used when rising from the sitting position
Correct answer: c

Which of these statements about the femur is incorrect?
a. the intertrochanteric line lies on the anterior aspect of the bone
b. the lateral condyle projects more anteriorly than the medial condyle
c. gluteus minimus is attached to the lesser trochanter
d. the intertrochanteric crest is the insertion point for the quadratus femoris
e. gluteus maximus attaches to the gluteal tuberosity
Correct answer: c

Which statement about the arches of the foot is not correct?
a. the medial arch contains the medial cuneiform as one of its bony elements.
b. the lateral arch contains the lateral two metatarsals as bony elements
c. flexor hallucis longus is important in maintaining the stability of the lateral arch
d. fibularis longus helps to maintain the lateral arch
e. fibularis longus helps to maintain the transverse arch
Correct answer: c

Which statement does not correctly describe the ligament of the knee joint?
a. the medial meniscus is larger than the lateral meniscus
b. the lateral meniscus is attached to the lateral collateral ligament
c. the transverse ligament of the knee attaches to both menisci
d. the anterior cruciate ligament prevents hyperextension of the knee
e. the posterior cruciate ligament inserts onto the medial femoral condyle
Correct answer: b

Tensor Fascia lata is supplied by:
a. anterior division of femoral nerve
b. superior gluteal nerve
c. nerve to vastus lateralis
d. inferior lateral cutaneous nerve
Correct answer: b

Which is not true about flexor policis brevis?
a. It is located medially to abductor pollicis brebis
b. flex carpometacarpeal joint
c. flex metacarpophalangeal joint
d. tendon typically contain sesamoid bone
e. innervated by c5 and c6
Correct answer: e

These muscles are attached to the medial two thirds of the clavicle EXCEPT:
a. sternomastoid
b. deltoid

c. pectoralis major
d. subclavius
e. sternohyoid
Correct answer: c

Which of the following about vertebral column is false?
a. provide a pivot for the head
b. protect spinal cord and spinal nerve
c. supports body weight
d. it's a part of appendicular skeleton
correct answer: d

Most medial structure passing under inferior extensor retinaculum the foot?
a. deep peroneal nerve
b. tibialis anterior
c. extensor hallucis longus
d. anterior tibial artery
e. Peroneus brevis
Correct answer: a

Which of the following lies between the ischial spine and ischial tuberosity?
a. obturator foramen
b. lesser Sciatic notch
c. acetabular notch
d. pubic arc
e. arcuate line
Correct answer: b

Which of the following nerve exit the pelvis through the greater Sciatic foramen superior to the piriformis muscle?
a. sciatic Nerve
b. pudendal nerve
c. superior Gluteal Nerve
d. lumbosacral trunk
e. obturator nerve
Correct answer: c

MR

In the resting state,Which ion contribute to negative membrane potential inside the cell:
A)Na+
B)K+✅
C)Cl-
D)Ca2+

The major interaction responsible for stabilizing plasma membrane
A) hydrophilic interaction
B)hydrophobic interaction✅
C)covalent bond
D)ionic bond

which molecules serves as primary neurotransmitter in central nervous system:
A)acetylcholine
B)dopamine
C)gamma aminobutyric acid ✅
D)none

In plasma membrane lipid molecules arranged in :
A. Head parallel ✅
B. Altimate
C. Scattered
D. Series

Fate of vesicle formed during receptor mediated endocytoss process:
A. Fuse with cell membrane
B. broken down by lysosomes✅

What type of molecule is targetted for internalization into lysosomes in receptor mediated endocytosis :
A. Ligand bound receptors ✅
B. Lipids
C. Sodium ions
D. Glucose

1.Sodium ions are usually more concentrated _ of the cell and potassium ions are usually more concentrated _ of the cell
A. Outside/ inside✅
B. Inside /outside
C. Inside / inside
D. Outside /outside

The polar head of a phospholipid is made of?
A. fatty acid

B. sugar
C. glycerol✅
D. vesicle

Increase number of specific protein on bilayer :
A. Increase permeability membrane to polar molecules and ion✅
B. decrease permeability membrane to polar molecules and ion
C. Increase permeability membrane to non polar molecules and ion
D. decrease permeability membrane to non polar molecules

Which on is true for osmosis:
A. Only solute move
B. Only solvent move ✅
C. Both solvent and solute move
D. non of solvent and solute move

Hereditary spherocytosis :
A. Ankirin level decrease by 40-50%
B. Spectrin lever deplete by 40-50%✅
C. Flattened shape cells and more resistance to lysis
D. Cells are round like a sphere and less resistance to lysis

Which motion in the plasma membrane at least occurs:
A. intra chain motion
B. flip flop movement✅
C. axial rotation
D. lateral rotation

Most composition of membrane is:
A. Carbohydrate
B. Protein✅
C. Lipid
D. Water

When the post synaptic receptors bind with neurotransmitter their ion channels open ,what the change in membrane potential is called
A. depolarization
B. hyperpolarization
C. repolarization
D. action potential

Which one is not rapidly releasable
Ca+ store:
A. GPCRs
B.CICR
C.Mitochondria✅
D. Non of them