

# FORMATIVE EXAM ~

## Semester 3

### SHORT ANSWER

#### Case 1 :

Q1) Describe pathways that stimulate activation of macrophages {MOD}

Ans/

1-classical pathway

- Classical macrophage activation may be induced by microbial products such as endotoxin, which engage TLRs and other sensors, and by T cell-derived signals, importantly the cytokine IFN- $\gamma$ , in immune responses.

2-Alternative pathway

- Alternative macrophage activation is induced by cytokines other than IFN- $\gamma$ , such as IL-4 and IL-13, produced by T lymphocytes and other cells.

Q2) Define infants medical conditions and effect of developmental embryologic {MSK}

Ans/

1-Syndactyly.

2-Polydactyly.

3-Amelia.

4-Meromelia.

5-Phocomelia

Q3) Write down important roles of transport processes in cell membranes {M&R}

Ans/

- The maintenance of intracellular pH.

- The maintenance of ionic composition.

- Regulation of cell volume.

- The concentration of metabolic fuels and building blocks.

- The extrusion of waste products of metabolism and toxic substances.

- The generation of ionic gradients necessary for the electrical excitability of nerve and muscle.

Q4) Determine the boundaries of heart {CVS}

Ans/

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.

Q5) Difference between primary and secondary wound healing {MOD}

TABLE 6.6: Differences between Primary and Secondary Union of Wounds.		
Feature	Primary Union	Secondary Union
1. Cleanliness of wound	Clean	Unclean
2. Infection	Generally uninfected	May be infected
3. Margins <i>کانتاری و چاک نه منبره</i>	Surgical clean	Irregular <i>په ځای شونځه ځای نه منبره</i>
4. Sutures	Used	Not used
5. Healing	Scanty granulation tissue at the incised gap and along suture tracks	Exuberant granulation tissue to fill the gap
6. Outcome	Neat linear scar	Contracted irregular wound
7. Complications	Infrequent, epidermal inclusion cyst formation	Suppuration, may require debridement

## Case 2 :

Q1) What is the content of middle mediastinum? {CVS}

Ans/ The middle mediastinum consists of the pericardial sac containing the heart and its blood vessels (coronary vessels) and the roots of the aorta, superior and inferior vena cava and the pulmonary vessels

Q2) How do you classify and define muscle groups according to their action? {MSK}

Ans/ 1- Agonist , prime movers (main muscles responsible for a particular movement.)  
 2- Antagonists(a muscle that relaxes while the other contracts), oppose primer movers.  
 3- Synergists, assist prime move neutralizelise extra motion).  
 4- Fixators, stabilizes action of prime movers e.g., fixes non-moving joint when prime mover acting over 2 joints.

Q3)Nurate the source of origin that lead to development of the skeletal muscle?

{MSK}

Ans/ Paraxial mesoderm , lateral plate mesoderm, neural crest cells.

Q4) Enumerate 4 cause of generalized edema ? {CPS}

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

Q5) Interpret 4 Physiological cause of peripheral cyanosis and enumerate 2 cause of central cyanosis? {CPS}

Ans/ ~ Causes Peripheral Cyanosis:

- Reduced cardiac output
- Cold exposure
- Redistribution of blood flow from extremities
- Arterial obstruction Venous obstruction.

~ Causes of central Cyanosis

- Decreased arterial oxygen saturation Decreased atmospheric pressure— high altitude
- Impaired pulmonary function
- Alveolar hypoventilation Inhomogeneity in pulmonary ventilation and perfusion (perfusion of hypoventilated alveoli)
- Impaired oxygen diffusion.

### Case 3 :

Q1) Enumerate the static factor's that are responsible for stability of the shoulder joint {MSK}

Ans/ **Static factors :**

Structural features : humeral head and glenoid version ,glenoid arc ,labrum ,intracapsular ligament and capsule ,extracapsular ligament

Q2) Mention the mechanism of neutrophils migration {MOD}

Ans/ 1- Neutrophil adhesion and emigration due to binding of complementary adhesion molecules on endothelial and neutrophil surfaces .

2- Chemical mediators change surface expression or avidity of adhesion molecules:

- a- Selectins.
- b- Immunoglobulins.
- c- Integrins.

Q3) What are the most important membrane transport mechanisms involved in the control of intracellular  $\text{Na}^+$ ,  $\text{K}^+$  and  $\text{Ca}^{2+}$  concentrations? {M&R}

Ans/

- 1-  $\text{Na}^+$  /  $\text{K}^+$  pump
- 2- Plasma membrane  $\text{Ca}^{2+}$  ATPase (PMCA)
- 3- (Sarco/Endo)plasmic reticulum ATPase (SERCA)
- 4- Sodium Calcium exchanger (NCX)
- 5- Sodium Hydrogen exchanger (NHE)
- 6- Mitochondrial  $\text{Ca}^{2+}$  uniporters

Q4) The membrane potential is restored rapidly to resting levels in nerve and muscle cells after an action potential. How do you think how this is achieved? {M&R}

Ans/ This is achieved by inactivation of  $\text{Na}^+$  gated channels, and opening of  $\text{K}^+$  gated channels. Thus  $\text{K}^+$  move outward which bring the internal charge back to normal (negative charge) .

Q5) Write short note about conducting system? {CVS}

Ans / The heart conduction system is the network of nodes, cells and signals that controls your heartbeat. The main parts of the system are the SA node, AV node, bundle of HIS, bundle branches, and Purkinje fibers

#### Case 4 :

Q1) Difference between acute and chronic inflammation? {MOD}

**Table 3.1 Features of Acute and Chronic Inflammation**

Feature	Acute	Chronic
Onset	Fast: minutes or hours	Slow: days
Cellular infiltrate نوع العنصر الذي يهزئ بشدة في	Mainly neutrophils	Monocytes/macrophages and lymphocytes
Tissue injury, fibrosis	Usually mild and self-limited	May be severe and progressive
Local and systemic signs	Prominent	Less

Q2) Enumerate 4 lab features of iron deficiency anemia? {CPS}

Ans/ Hb , Htc , RBC : low

MCV , MCH MCHC : low

Retics : high

Plt : normal or low or high

WBC : normal or low

Q3) Enumerate 4 characterized good screening test? {CPS}

Ans/

1-Simple: the test should be easy to learn and perform.

2-Rapid: the test should not take long to administer and the results should be available soon.

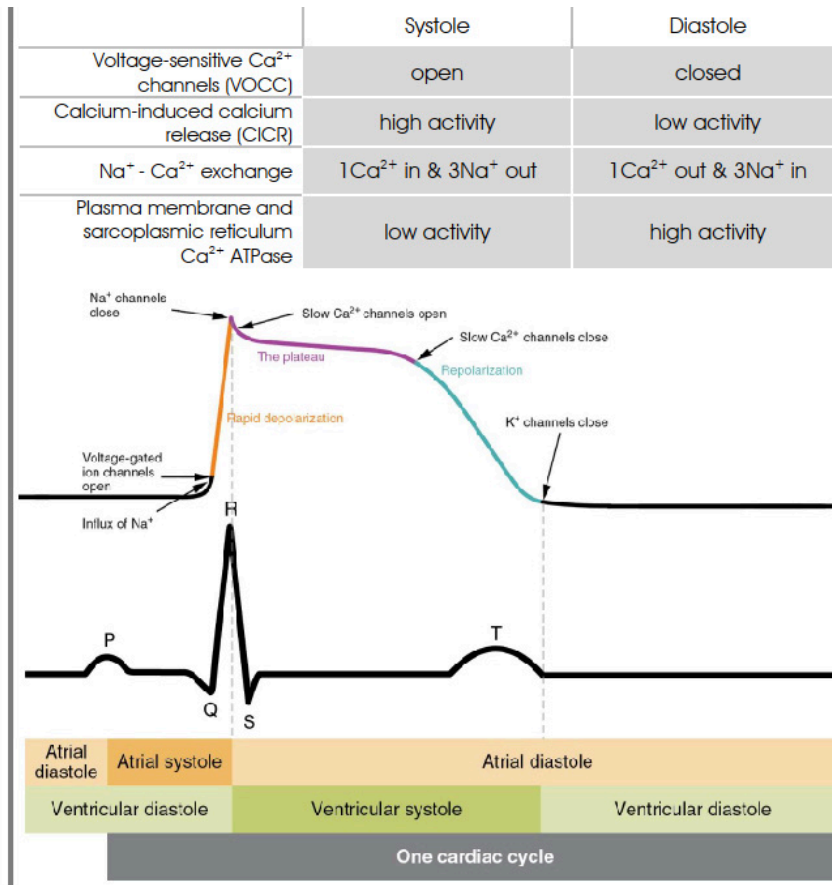
3-Safe: the test should not carry potential harm to screeners

4-Acceptable: the test should be acceptable to screeners.

Q4) Explain why doesn't the aortic valve close as soon as the heart muscle begins to relax? {CVS}

Ans/ Valve close when interventricular pressure falls below arterial pressure and blood start to backflow

Q5) Describe changes in  $[Ca^{2+}]_i$  in cardiac ventricular cells during cardiac cycle. {M&R}



## MULTIPLE CHOICE

### Case 1 :

- Q1) All cell injury caused by toxic except:- {MOD}
- A- Potentially toxic agents are encountered daily in the environment.
  - B- Drugs if used excessively or inappropriately .
  - C- Air pollutants, insecticides, CO, asbestos, cigarette ,smoke, ethanol only toxin
  - D- Many drugs in therapeutic doses can cause cell or tissue injury
  - E- Glucose , salt, water and oxygen caused toxic

Ans/ C

- Q2) Which factor is not an physical agent in cell injury ? {MOD}

- A- Trauma
- B- Hyper or Hypothermia
- C- Electrical shock
- D- Changes in atmospheric pressure
- E- Drug

Ans/ E

Q3) Which is of following is not true regarding to clavicle? {MSK}

- A- The middle end is enlarged where is attached with the sternum.
- B- The lateral end is flat where is articulate with the humerus.
- C- The middle two thirds of shaft is convex anteriorly.
- D- The clavicle is long bone that has no medullary cavity.
- E- The clavicle transmit shock from upper limb to axial skeleton.

Ans/ B

Q4)The trapezius is attaches to which of the following regions of the clavicle? {MSK}

- A- Subclavicular groove
- B- Conoid tubercle
- C- Quadrangular tubercle
- D- One third of the clavicle
- E- Trapezoid line

Ans/ D

Q5) You are screening 100 children for iron deficiency , %5 of them have iron deficiency but your test result shows that %90 normal and %10 has iron deficiency.

{CPS}

- A- Specificity
- B- Sensitivity
- C- Positive predictive value
- D- Negative predictive value

Ans/ D. may be

Q6) What are most common causes of anemia in children: {CPS}

- A- Sickle cell anemia
- B- Iron deficiency anemia
- C- Leukemia
- D- Folic acid deficiency

Ans/ B

Q7) A cell will\_\_\_\_\_in a hypotonic solution? {M&R}

- A- Swell and perhaps burst.
- B- Shrink
- C- Size of the cell will not change
- D- Size of the cell will change from large to small and from small to large.

Ans/ A

Q8) Blood vessel reach every part of the body except: {CVS}

- A- Brain and spinal cord
- B- Heart it self
- C- Upper& lower limb
- D- Cartilage, epithelia& and cornea

Ans/ D

Q9) In addition to the continuous and fenestrated , there is another type of capillary called sinusoids which present in ..... {CVS}

- A- Kidney , amp , liver
- B- Bone marrow , spinal cord
- C- Liver , spleen , and bone marrow
- D- Liver , spleen , and kidney

Ans/ C

Q10) Which one is non cause of iron deficiency ? {CPS}

- A- Chronic diarrhea
- B- Breastfeeding
- C- Iron deficiency anemia

Ans/ A.

## Case 2 :

Q1) All of the following are true about cell injury except: {MOD}

- A- ATP depletion
- B- Irreversible mitochondrial damage
- C- Intracellular sodium and loss of sodium homeostasis
- D- Defects in membrane permeability
- E- Oxygen and oxygen-derived free radicals

Ans/ C

Q2) Typical inflammatory process occurs in a series of reaction ,these are true expect: {MOD}

Answer / The reactions are continues and uncontrolled

Q3) A patient stubbed and suffer a transaction in the posterior chord of the brachial pleaxus .which of the following muscle is affected ? {MSK}

- A- Serratus anterior
- B- Datissimus dorsai
- C- Teres minor
- D- Supraspinatus
- E- Brachialis

Ans/ A

Q4)Which test do you order for a patient with syncope? {CPS}

- A- CBC
- B- Random blood sugar

Ans/ B

Q5) What is the cause of non-pitting edema ? {CPS}

Ans / Lymphatic obstruction

Q6) Most common cause of syncope. {CPS}

- A-Cardiac syncope .
- B- Vasovagal syncope.
- C- Hypovolemic.
- D-psychiatric

Ans/ B

Q7) Net movement of water across selective permeability membrane without use of energy called: {M&R}

- A- Diffusion
- B- Endocytosis
- C- Osmosis

Ans/ C

Q8)Which of the following is the most likely immediate effect of g-protein activation ?

{M&R}

- A- Receptors are stimulated to bind their ligand
- B- Enzymes are activated that catalyze second messenger formation
- C- GTP is depleted from cell
- D- G-protein bind to DNA and activate gene expression.

Ans/ B

Q9) your friend was bed ridden for 48 days, and he has got bilateral leg edma so what's your advice for him? {CPS}

- A- Edema due to fluid he drinks during the the trip and release fluid
- B-Edema due to gravity and muscle relaxation,which needs muscular pump to venous return
- C- Walking help more fluid out from body
- D- Bilateral edema due to usually due to gravity

Ans/ B

Q10) MCQ {CVS}

- A- Aortic and pulmonary valve closes at the onset of the ventricular systole
- B- During isovolumetric contraction the pressure in ventricle rises but the intraventricular volume does not change
- C- The aortic valve opens about 400 ms after the mitral valve closes
- D- The mitral valve opens about 800 ms after the aortic valve closes

Ans/ B



### Case 3:

Q1) About acute inflammation select the correct answer: {MOD}

- A- Start days after injury
- B- Mainly infiltrated by neutrophil
- C- Tissue injury and fibrosis are severe
- D- There is no local signs
- E- Systemic effect is minimal

Ans/ B

Q2) All of the following steps are in neutrophils migration except: {MOD}

- A- Rolling
- B- Secondary adhesion
- C- Stable adhesion and aggregation
- D- Trans endothelial migration
- E- Extravasation

Ans/ B

Q3) Sternoclavicular joint .... {MSK}

- A- Dislocated easily
- B- Supply by lateral thoracic and thoraco acromial
- C- Innervated by lateral medial pectoral

Ans/

Q4) Which of following true about acromioclavicular joint ? {MSK}

- A- Saddle synovial joint
- B- Strengthen by coracohumeral and transverse humeral ligament
- C- Supply by lateral thoracic artery
- D- Innervated by subclavus nerve
- E- When dislocated reflect shoulder joint dislocation

Ans/

Q5) A patient can't abduct the deltoid because of paralysis which nerve affected :

{MSK}

- A- Thoracodorsal nerve.
- B- Radial nerve
- C- Median nerve
- D- Axillary nerve

Answer (deltoid is innervated by axillary nerve)thus the choice (D)is correct

Q6) Neurotransmitter are released into synapse from which of following: {M&R}

- A- Presynaptic membrane
- B- Postsynaptic membrane
- C- Golgi apparatus
- D- Axon hillock

Ans/ A

Q7) Which of the following does not effect the conduction speed of nerve impulse?

{M&R}

- A- Temperature
- B- Axon diameter
- C- Cell body size
- D- Myeline sheath

Ans/ C

Q8) What is largely response for negative resting membrane potential (around -70mV) in neuron ? {M&R}

- A- Axonal insulation by Schwann cell
- B- Voltages sodium gate open
- C- Action potential
- D- Potassium leak current

Ans/ D

Q9) Odd answer: {CVS}

- A-Ventricles filled by atrial contraction
- B- Mitral valve and tricuspid valve are close during atrial contraction
- C- Intra ventricular pressure rise toward end of diastole
- D- Tricuspid and mitral valve are open in early diastole

Ans/ B

Q10) MCQ {CVS}

- A- Regular heartbeat needs pacemaker
- B- The action potential starts from the right ventricle
- C- The base of the heart is first place to contract
- D- The electrical potential spreads from coronary artery to ventricle

Ans/ A

#### Case 4:

Q1) Which of following not local complication of acute inflammation {MOD}

- A- Pain
- B- Exudate
- C- Loss of fluid
- D- Swelling
- E- Fever

Ans/ E

Q2) In the process of resolution which are the following is incorrect ? {MOD}

- A- Continuous migration of inflammatory cell
- B- Clearness of mediators
- C- Clearness of infection
- D- Replace of injured cell

Ans/ A

Q3) MCQ {CVS}

- A- There is no autonomic supply to the lung
- B- Vasomotor tone varies from organ to organ
- C- Adrenaline which secret from the adrenal medulla acts on GUT only
- D- Sympathetic vasomotor tone tending smooth muscle of arterioles to relax more

Ans/ B

Q4) All of these are true about iron deficiency except? {CPS}

- A- More common in mall than female
- B- hypochromic microcyte erythrocyte
- C- Transferrin is plasma protein carrier
- D- Ferritin is iron protein storage

Ans/ A

Q5) Regarding uptake of cholesterol which one is false? {M&R}

- A- LDL receptor are localized in cluster all over cell membrane
- B- Coated vesicle pits invaginate and pinch off from plasma membrane.
- C- Coated vesicles are quickly uncoated
- D- Uncoated vesicles are fusing with the large smooth vesicle called endosome

Ans/ A

Q6) Regarding intracellular receptor which one is false? {M&R}

- A- The effect of intracellular receptor are slow at the beginning
- B- Involved in translation and transcription process
- C- The steroid hormone receptor example
- D- The effect of receptors that activate channels and enzymes are slow

Ans/ D

Q7) MCQ. {CVS}

- A- Sympathetic vasomotor tone tends to relax smooth muscle of arteriole
- B- Adrenalin which secret from medulla acts on gut only
- C- No autonomic supply to lung
- D- Vasomotor tone varies from organ to organ

Ans/ D

Q8) MCQ {CVS}

- A- Blood flow is turbulent in most vessels
- B- Blood flow become turbulent when velocity exceeds a critical value
- C- Resistance for turbulent blood flow lower than laminar
- D- Turbulent occurs only in small blood vessels

Ans/ B

