Physiology Lec 4 MCQ

1. Which capillaries have the largest intercellular pores, allowing even proteins to pass through?

A. Fenestrated capillaries
B. Continuous capillaries
C. Sinusoids
D. Lymphatic capillaries

Answer: C

2. What is the primary force that drives ultrafiltration at the arterial end of capillaries?

A. Plasma colloid osmotic pressure
B. Interstitial fluid hydrostatic pressure
C. Capillary blood pressure
D. Interstitial colloid osmotic pressure

Answer: C

3. Which process allows large, non-lipid-soluble molecules, such as protein hormones, to cross the capillary wall?

A. Diffusion
B. Transcytosis
C. Bulk flow
D. Endocytosis

Answer: B

4. What primarily determines the permeability of capillary walls to different substances?

A. Blood viscosity
B. Size of capillary pores
C. Osmotic gradients
D. Smooth muscle contraction

Answer: B

5. What is the key physiological mechanism behind vasomotion?

A. Hormonal control

B. Sympathetic innervation
C. Intermittent contraction of precapillary sphincters
D. Continuous smooth muscle contraction
Answer: C

6. Which of the following statements about bulk flow is correct?
A. It is the primary mechanism for solute exchange.
B. It regulates the distribution of extracellular fluid.
C. It requires active transport.
D. It occurs only in fenestrated capillaries.
Answer: B

7. What happens when tissue metabolic activity increases?
A. Precapillary sphincters relax, opening more capillaries.
B. Capillary pores become smaller.
C. Lymphatic flow decreases.
D. Vasomotion stops.
Answer: A

8. What is the main function of the lymphatic system in capillary exchange?
A. Transport of oxygen and CO2
B. Regulation of arterial pressure
C. Return of excess filtered fluid and proteins to the blood
D. Hormonal transport
Answer: C

9. What causes interstitial fluid colloid osmotic pressure to remain nearly zero?
A. Low interstitial protein concentration
B. High plasma protein levels
C. Continuous filtration of solutes
D. Active transport by lymphatic vessels
Answer: A

10. Which of the following conditions does NOT lead to edema?
A. Increased venous pressure
B. Reduced plasma oncotic pressure
C. Increased plasma protein concentration
D. Lymphatic obstruction
Answer: C

11. What is the normal capillary hydrostatic pressure at the arteriolar end?
A. 25 mmHg
B. 37 mmHg
C. 50 mmHg
D. 17 mmHg

Answer: B

12. Which type of capillary is characterized by tight junctions and limited permeability?
A. Continuous capillaries
B. Fenestrated capillaries
C. Sinusoids
D. Lymphatic vessels
Answer: A

13. Which pressure favors the movement of fluid back into capillaries?
A. Interstitial fluid hydrostatic pressure
B. Capillary blood pressure
C. Plasma colloid osmotic pressure
D. Interstitial colloid osmotic pressure
Answer: C

14. What contributes to the formation of edema during congestive heart failure?
A. Decreased plasma protein synthesis
B. Increased capillary hydrostatic pressure
C. Decreased interstitial hydrostatic pressure
D. Lymphatic obstruction
Answer: B

15. Which force is responsible for most protein-free plasma being reabsorbed at the venular end of the capillary?
A. High capillary hydrostatic pressure
B. Increased plasma oncotic pressure
C. High interstitial colloid osmotic pressure
D. Large pore size
Answer: B

16. What is the primary driving force for lymph flow through lymphatic vessels?
A. Skeletal muscle contraction
B. Smooth muscle rhythmic contraction
C. Blood pressure
D. Venous suction
Answer: B

17. What is the most important factor regulating precapillary sphincter relaxation?
A. Sympathetic activity
B. Tissue oxygen demand
C. Arterial blood pressure
D. Plasma protein levels

Answer: B

18. What distinguishes lymphatic capillaries from blood capillaries?
A. Thicker walls
B. Presence of smooth muscle
C. One-way valve-like openings for fluid entry
D. Tight endothelial junctions
Answer: C

19. Which condition is associated with blockage of lymph vessels by filarial worms?
A. Blisters
B. Elephantiasis
C. Venous thrombosis
D. Pulmonary edema
Answer: B

20. What determines net filtration pressure in capillary exchange?
A. Capillary wall thickness
B. Balance of hydrostatic and oncotic pressures
C. Volume of lymph flow
D. Pore size and shape
Answer: B