

Tanta University

Faculty of Medicine

Chest Department

MD : Examination

Physiology

Semester I

Time Allowed: 3Hours

Total marks 90



All Questions should be answered:

1. Give short account of normal values of pulmonary blood pressure and factors affecting pulmonary arterial blood pressure. (10 marks)
2. Explain body temperature regulation during exposure to hot with special reference to mechanism of hyperpyrexia (10 marks)
3. Discuss chemical regulation of respiration (15 marks)
4. Give short account on lung surfactant, structure, significance and factor affecting (10 Marks)
5. Describe hypoxia definition, types and its effects (15 marks)
6. Discuss diffusion capacity DLCO, definition, methods of measurement, factor affecting and its significant (10 marks)
7. Describe mechanism of blood coagulations (10 marks)
8. MCQ (10 marks)

Choose one answer for each of the following question:

1. All the following increase the cardiac output Except:
 - a) Increased end diastolic volume
 - b) Increased venous return
 - c) Moderate increase in the heart rate
 - d) Acidosis
2. Angiotensin II:
 - a) Is formed by the action of an enzyme on angiotensin III
 - b) Is released from juxtaglomerular apparatus of the kidney
 - c) Acts by stimulation of the vasomotor center
 - d) Is formed due to stimulation of renin release in the circulation
3. Acidosis is present in the following conditions:
 - a) Excessive ingestion of alkaline drinks
 - b) Diabetes insipidus
 - c) Diabetes mellitus
 - d) Non of the above
4. Factors that shift oxygen dissociation curve to the right:
 - a) Increase 2,3 DPG
 - b) Increased temperature
 - c) Acidosis
 - d) All of the above
5. The dead space has the following functions Except:
 - a) Is functioning as an air conditioner
 - b) Its volume is about 150 ml
 - c) Parasympathetic stimulation increase it
 - d) It has a defensive function in the respiratory system

6. The ratio of cardiac work to the total energy expenditure is:

- a) The cardiac mechanical efficiency
- b) The cardiac index
- c) Constant during muscular exercise
- d) Not affected by the coronary blood flow

7. The volume of gas in the lung after forced expiration is :

- a) Residual volume
- b) Expired reserve volume
- c) Functional residual capacity
- d) Inspiratory reserve volume

8. Peripheral chemoreceptors are stimulated mainly by:

- a) Low PO₂
- b) Low PCO₂
- c) Increase hydrogen ion concentration
- d) Alkalosis

9. The importance of vagal tone on the heart is:

- a) To increase the arterial blood pressure
- b) To increase the intestinal secretion
- c) To increase the oxygen consumption
- d) To decrease the cardiac activity

10. In the arterial blood:

- a) The hematocrite value is higher than the venous blood
- b) Carbamino compounds are more than the venous blood
- c) PO₂ equals 100 mmHg
- d) PCO₂ equals 46 mmHg

11. The following hormones elevate the arterial blood pressure **Except:**

- a) Vasopressin (ADH)
- b) Angiotensin II
- c) Aldosterone
- d) Histamine

12. The main buffer systems in the blood are:

- a) Carbonic acid/bicarbonates
- b) HB buffer
- c) Plasma proteins
- d) All of the above

13. Surfactant deficiency occurs in the following conditions **Except:**

- a) Long term inhalation of 100% O₂
- b) Hyaline membrane disease of premature infants
- c) Hypocortisim
- d) Hyperthyroidism

14. Hemophilia is due to :

- a) Deficiency of factor VIII
- b) Deficiency of platelets
- c) Prolongation of bleeding time
- d) Vit K deficiency

15. Heparin has the following effects **Except:**

- a) Lipemia clearing effect
- b) Combines with antithrombin III and increases its action
- c) Can be given orally and by injection
- d) Acts both in vivo and in vitro

16. The heart rate is increased due to:
- a) Increase of the venous return
 - b) Decrease arterial blood pressure
 - c) O₂ lack
 - d) All of the above
17. The conversion of fibrinogen to fibrin is promoted by:
- a) Factor 10
 - b) Thrombin
 - c) Prothrombin
 - d) Platelets
18. Pitting edema is resulting from all the following diseases **Except**:
- a) Renal disease
 - b) Congestive heart failure
 - c) Liver disease and hypoproteinemia
 - d) Elephantiasis
19. The hemorrhagic tendency in liver diseases is due to deficiency of:
- a) Platelets
 - b) Bilirubin
 - c) Bile pigments
 - d) Vit K
20. All of the following mechanisms occur in hemostasis **Except** :
- a) Increase of heparin secretion
 - b) Vasoconstriction of blood vessels
 - c) Clot formation
 - d) Platelet aggregation