→ IP which is required to keep the Hb sol. saturated.

AZRA NAHEED MEDICAL COLLEGE LAHORE

PHYSIOLOGY DEPARTMENT
1st YEAR MBBS 2016-17

→ Herring Breuer ✓ → Spirogram
→ Chloride shift ✓ → Hypoxia
→ haldane effect ✓ → Respiratory membrane
→ Nervous control

UNIT TEST: Respiration

SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

MARKS= 30
TIME = 40min

DATED: 09-08-2017

Q1 A) Explain the mechanism of Inspiration & expiration with special emphasis on changes in intra-respiratory pressure & muscles involved? F#128 (5)

Q2 A) Draw O2-Hb dissociation curve? G#530
B) What do you understand the rightward shift of the curve? Enlist the factors causing right shift of curve? F139 (2+2+1)
C) Define P50? At 1/2 saturation of Hb. b/w partial pressure and 50%

Q3 A) Define dead space? What are its types? Outline the functions of dead space? (3+2) F133 & N-4
B) Define Ventilation/ Perfusion ratio? What is the normal value of V/Q? Mention any two conditions in which it becomes abnormal? F137 Obstructive Pulmonary disease. Restrictive Pulmonary disease.

Q4 A) Define compliance of the lungs. Draw hysteresis loop diagram & mention important factors on which compliance depends? G#499 (3+2)
B) Define Functional residual capacity (FRC)? What is its normal value & briefly mention the method to find it? G502 - 503

Q5. A) List the different means of transport of CO2 in blood? F139. (3+2)
B) Define Bohr's effect & Heldane effect? F139 F140

Q6. A) A 30 year old scuba diver remains beneath the sea for about 4-5 hours and was breathing compressed air. He quickly ascends to the surface of the sea and develops severe pains in his body, joints along with the breathlessness & dizziness (1+1+0.5)
i. Diagnose the disease
ii. What pathophysiology underlies this disease? Decompression Sickness / Caisson Disease
iii. How this condition can be prevented? F144-145

B) What are peripheral chemoreceptors? Give their location & what is the most potent stimulus of these receptors? G542 F141 (2.5) CO_2 & H_2

Fundions of Dead Space:-
1) Cough Reflex
2) Sneez Reflex
3) Regulation of Temperature
4) Stimulation or Synthesis of ACE enzyme
5) Entrapment of foreign particles → (Angiotensin converting enz
6) To filter dust particles
7) Acid. Base Blance

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AZRA NAHEED MEDICAL COLLEGE
LAHORE

Department of Physiology
1st YEAR MBBS (SESSION 2012-17)
TEST: Skin & Respiration Physiology
DATED: 05-06-13

SEQs (SHORT EASSY TYPE QUESTIONS)

ATTEMPT ALL QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS

TIME= 40
MARKS= 30

Q1 (A) Draw and label Oxy – Hb dissociation curve. (3)
(B) Enlist the factors shifting the curve to right. (2)

2. (A) Describe in detail the nervous control of respiration. (2)
(B) Define compliance. Explain it with help of compliance graph. List the factors on which it depends. (3)

3. (A) Give an account of mechanism of inspiration. (2.5)
(B) Define hypoxia, Give its types .Explain briefly the hypoxic hypoxia. (2.5)

4. (A) Draw and label the respiratory membrane. (2.5)
(B) Name the factors affecting the diffusion of gases across respiratory membrane. (2.5)

Define and explain the following terms
(A) Bohr effect. (1)
(B) Carbon dioxide carriage in blood (3)
(C) Cyanosis (1)

(A) Describe the mechanism of heat loss by sweating and the impact of acclimatization on it. (2.5)
(B) Discuss in detail the role of hypothalamus in regulating the body temperature. (2.5)

→ Cardiac Output → Chest Movement
→ Hypoxia → Oxy-Hb
→ Shock → diffusion equation
→ Hypertension → Obstructive vs Restrictive
→ Compliance → Lung Function Test
→ Nervous Control → Spirogram
→ PSO → Bohr vs Haldane
→ Inspiration → Blood Pressure Regulation
→ Cardiac Cycle

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Test, Respiration Physiology, MBBS 2011-16
Department of Physiology

6

SEQs (SHORT EASSY TYPE QUESTIONS)

ATTEMPT ALL QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS

TIME= 40
MARKS= 30

Q.1 (a) Draw and label the O2-Hb curve. 3 marks
(b) Enlist the factors shifting the curve to right 2 marks

Q.2 Describe in detail the chemical control of respiration. 5 marks

Q.3 (a) Give an account of the mechanism of inspiration. 3 marks
(b) Define hypoxia, Mention briefly the hypoxic hypoxia. 2 marks

Q.4 (a) Draw and label the respiratory membrane 2.5 marks
(b) Name the factors affecting the diffusion of gases. 2.5marks

Q.5 Define and explain the following terms
(a) Haldane's effects 2marks
(b) Hamburger phenomena 2marks
(c) Cyanosis 1marks

Q.6 Define compliance. Explain it with help of compliance graph. List the factors on which it depends. 5 marks

Zohaib

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NAHEED MEDICAL COLLEGE LAHORE

PHYSIOLOGY DEPARTMENT
1ST YEAR MBBS 2018-19

Roll # 52

MODULE TEST: RESPIRATION

SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

MARKS= 50
TIME = 2 Hrs

DATED: 04-09-2019

Increase ?

Q1. A) Explain the mechanism of inspiration & expiration with special emphasis on changes in respiratory pressure & muscles involved? volume change Diameters change (5)

Q2. A) Draw O2-Hb dissociation curve. (2+2+1)
B) A 25 year old athlete participates in a marathon. Explain in detail the effect of exercise on O2-Hb dissociation curve?
C) Define P_{50} & explain the effect of exercise on P_{50}?

Q3. A) Define compliance of the lungs. Draw compliance hysteresis loop diagram. (2+1.5+1.5)
B) An X-ray of a 50 year old man with history of smoking showed bullae formation in the lung. What will happen to the lung compliance of this person?
C) What investigations you will suggest to assess the lung functions in this patient? LUNG FUNCTION TEST

Q4. A) A 50 year old man had a surgery of his fractured femur. He experienced pulmonary embolism which completely blocked blood flow to his right lung. What will be the effect on ventilation & perfusion of the affected lung? (2.5+2.5)
B) Define dead space? What is it's normal value? Describe in detail its different types?

Q5. A) List the different means of transport of CO2 in blood? (3+2)
B) Define Bohr's effect & Haldane effect?

Q6. Draw a normal spirogram. Name all the volumes and capacities measured by direct spirometry? V. V IMP. (5)

Q7. A) Enlist all the lung function tests. (2.5+2.5
B) Differentiate between obstructive and restrictive lung diseases on the basis of different lung function tests.

Q8. A) Define and classify hypoxia with the help of examples. (2.5 + 2
B) Describe the process of acclimatization of people living in high altitudes.

Q9. A) Name all the nervous control centers of respiration and outline their functions. (3 +
B) What is CAISSON'S DISEASE? Explain its pathophysiology.

Q10. Define the following (1+1+1
I. Respiratory membrane
II. Oxygen content ?
III. Oxygen saturation
IV. Surfactant & surface tension

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AZRA NAHEED MEDICAL COLLEGE
LAHORE

1ST YEAR MBBS, 2013-14
(PHYSIOLOGY)

INSTRUCTIONS
1-All subjective part is to be submitted within 40mins, no extra time will be given.
2-Neat handwriting, use of margins will increase the outlook /presentation of your paper.

SYSTEM TEST: RESPIRATORY SYSTEM

SUBJECTIVE PART

ATTEMPT ALL QUESTIONS; ALL QUESTIONS CARRY EQUAL MARKS.

TOTAL MARKS 30 **Time = 40mins**

DATE: 11-06-14

2. A) Draw and label Oxy – Hb dissociation curve. Also show the point for P50? (3)
B) Enlist the factors shifting the curve to right. (2)

3. A) Describe in detail the nervous control of respiration? (2)
B) Define compliance. Explain it with help of compliance graph. List the factors on which it depends. (3)

4. A) Give an account of mechanism of inspiration? (2.5)
B) Define hypoxia. Give its types. Explain briefly the hypoxic hypoxia. (2.5)

5. A) Draw and label the respiratory membrane. (2.5)
B) Explain the factors effecting the rate of diffusion of gases across the respiratory membrane in the form of equation. (2.5)

6. Define and explain the following terms: (1+3+1)
a) Bohr effect (1)
b) Carbon dioxide carriage in blood (3)
c) Cyanosis (1)

7. A) Outline the changes in respiratory system during exercise. (5)
B) A policeman received a gunshot wound to the right side of his chest wall. He was rushed to the hospital where on examination he had severe dyspnea, decrease respiratory movements of chest wall on right side, tracheal deviation to the left side, decrease breath sounds on right side of chest on auscultation.

a) What is the patient suffering from? (0.5)
b) Justify how there is decreased chest expansion in this patient and further chain of events in this patient if he does not receive treatment? (1)
c) What effect will his condition have on PO_2 and PCO_2 in blood? (0.5)

LAHORE

1ST YEAR MBBS, 2014-15
(PHYSIOLOGY)

INSTRUCTIONS
1-All subjective part is to be submitted within 40mins, no extra time will be given.
2-Neat handwriting, use of margins will increase the outlook /presentation of your paper.

UNIT TEST: RESPIRATION-I PHYSIOLOGY
SUBJECTIVE PART

ATTEMPT ALL QUESTIONS; ALL QUESTIONS CARRY EQUAL MARKS.

TOTAL MARKS 30 Time 40mins DATE: 16-6-15

Q no 1 A. Define and calculate pulmonary ventilation and alveolar ventilation? (2)

B. Briefly outline the mechanism of inspiration? (3)

Q no 2 A. List the important chest pressures during inspiration and expiration? (2)

B. Define dead space? Give its types and functions? (3)

Q no 3 A. Define pulmonary edema? What is pulmonary edema safety factor? (2)

B. Define V/Q ratio? Give its clinical significance? (3)

Q no 4 A. Define respiratory unit? Give the layers of respiratory membrane? (2)

B. Explain the factors affecting the rate of diffusion of gases across respiratory membrane? (3)

Q no 5 A. Enumerate the lung volume and capacities? (2)

B. Give the clinical significance of functional residual capacity and name the method to find out it? (3)

Q no 6 A. Define compliance of lung. Explain with the help of diagram? (2)

B. Enlist the factors responsible for lung compliance? Discuss the role of surfactant? (3)

Q no 3 (B)
→ V/Q ratio can be measured by ventilation/perfusion scan
→ V/Q mismatch can cause type I, respiratory failure
→ V/Q scans are very useful tools for determination of collagen lung disease & it causes treatment of patient.

AZRA NAHEED MEDICAL COLLEGE LAHORE

PHYSIOLOGY DEPARTMENT
I[st] YEAR MBBS 2015-16

UNIT TEST: Respiration

SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

MARKS= 30
TIME = 40min

DATED: 08-08-2016

Q.No.1 A) Name the muscles of inspiration during quite normal and forced breathing? (2)
B) Discuss mechanism of inspiration with special reference to the pressures

Q.No.2 A) Define the compliance of lungs? Outline the factors on which it depends?
B) Define dead space. Give its types and functions?

Q.No.3 A) Define respiratory unit. List the layers of respiratory membrane? (2)
B) Discuss the factors effecting diffusion of gases across respiratory membrane (3)

Q.No.4. A) Draw and label O2-Hb association curve? Discuss the buffer role of Hb correlating with the transport of O2. (4)
B) What is P50? (1)

Q.No.5 A) Define Ventilation/Perfusion (V/Q) ratio. What happens to V/Q ratio in Chronic Obstructive Pulmonary Diseases? (2)
B) What are inspiratory ramp signals, from where they are emitted and discuss their important characteristics?

Q.No.6 A) Enumerate the changes which take place during acclimatization at high altitude? (At least six changes) (3)
B) A deep sea diver was working for 1 hour at a depth of 200 feet under the sea. Suddenly he saw a shark and rushed to the sea surface.

i) What problem can develop due to this sudden environmental change? (0.5)
ii) Briefly mention the features and treatment of this condition (1.5)

Q 6(A). Hyperpnea
2. Heart rate ↑
3. Stroke volume ↓
4. Improper digestion
5. Polycythemia ↑
6. RBCs ↑
7. Myoglobin ↑
8. Mitochondria ↑
9. ↓ lactate production

→ 1l blood is required to keep Hb 50% saturated.

AZRA NAHEED MEDICAL COLLEGE LAHORE

PHYSIOLOGY DEPARTMENT
1st YEAR MBBS 2016-17

UNIT TEST: Respiration

SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

MARKS= 30
TIME = 40min

DATED: 09-08-2017

Q1. A) Explain the mechanism of inspiration & expiration with special emphasis on changes in respiratory pressure & muscles involved? F #128 (5)

Q2. A) Draw O2-Hb dissociation curve. G1 # 530 (2+2+1)
B) What do you understand the rightward shift of the curve? Enlist the factors causing right shift of curve? P# 139
C) Define P50? # is correlation b/w partial pressure and saturation of Hb.

Q3. A) Define dead space? What are its types? Outline the functions of dead space? (3+2) F 133 F,A
B) Define Ventilation/Perfusion ratio? What is the normal value of V/Q? Mention any two conditions in which it becomes abnormal? obstructive pulmonary disease restrictive pulmonary disease

Q4. A) Define compliance of the lungs. Draw hysteresis loop diagram & mention important factors on which compliance depends? (3+2)
B) Define Functional residual capacity (FRC)? What is its normal value & briefly mention the method to find it? 2502 , 503

Q5. A) List the different means of transport of CO2 in blood? F139. (3+2)
B) Define Bohr's effect & Heldane effect? F139 F140

Q6. A) A 30 year old scuba diver remains beneath the sea for about 4-5 hours and was breathing compressed air. He quickly ascends to the surface of the sea and develops severe pains in his body, joints along with the breathlessness & dizziness (1+1+0.5)
i Diagnose the disease
ii What pathophysiology underlies this disease? Decompression sickness/caisson Dis F 144-145
iii How this condition can be prevented?

B) What are peripheral chemoreceptors? Give their location & what is the most potent stimulus of these receptors? G3542 F-141 (2.5)

Functions of Dead Space:-
1) Cough reflex
2) Sneeze reflex
3) Regulation of Temperature
4) Stimulation or synthesis of ACE enzyme
5) Entrapment of foreign particles (Angiotensin converting en
6) To filter dust particles
7) Acid Base Balance

140 / 160

Q-2 A medical officer posted at basic health unit determined the lung function tests of a patient on a simple spirometer available in the basic health unit. Which pulmonary volumes and capacities can be measured in this patient? Plot a spirogram to show these pulmonary volume and capacities. (5 marks)

Q3. a. Describe the zones of blood flow in the lungs. (3 marks)

b. What is the effect of exercise on the blood flow in these blood flow zones? (2 marks)

Q 4- a. A patient presented in emergency with breathlessness, decreased B.P., tachycardia and sweating. His pulmonary capillary pressure was estimated to be 25 mm Hg. The doctor told the relatives that this is a lethal pulmonary edema because of acute (sudden) left heart failure. Give the mechanism for its development? (2 marks)

b. Contrast how the alveolar oxygen and carbon dioxide partial pressures behave in the following two situations: (1.5×2 marks)

i. when $\dot{V}_A/\dot{Q}$ equals zero

ii. when $\dot{V}_A/\dot{Q}$ equals infinity

Q-5 a. Draw and label respiratory membrane. (1 mark)

b.Enumerate the factors affecting gaseous diffusion through a respiratory membrane. (2 marks)

c. Discuss briefly how (in different diseases) diffusion is affected by a compromise in one or more of these factors? (2 marks)

Q-6 a. Enummerate the factors that shift the Oxygen Hemoglobin Dissociation Curve to the right? Explain it with the help of diagram. (2 marks)

b. Expalin the Bohr effect? (3 marks)

Q-7 a. In what forms carbon dioxide is transported in blood? (1 mark)

b.What is chloride shift? (2 marks)

c. Discuss the significance of the Haldane effect in the transport of CO_2 out of the lungs. (2 marks)

Q 8-a. What are peripheral chemoreceptors? Give their role in the regulation of respiration. (3 marks)

b. Explian how Hering Breuer Inflation reflex is a safety mechanism of lungs. (2 marks)

Q-9 a. Define hypoxia. Enumerate different types. Also briefly describe which types of hypoxia will benefit from oxygen therapy and why? (3 marks)

b. What effect does an obstructive lung disease process have on the functional residual capacity and FEV1? (2 marks)

Q 1- a. List non respiratory functions of lungs. (2 marks)

b. Define compliance of lungs. Briefly explain the factors on which compliance of lung depends. (3 marks)

Q-2 A medical officer posted at basic health unit determined the lung function tests of a patient on a simple spirometer available in the basic health unit. Which pulmonary volumes and capacities can be measured in this patient? Plot a spirogram to show these pulmonary volume and capacities. (5 marks)

Q3. a. Describe the zones of blood flow in the lungs. (3 marks)

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