

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222]

**FEBRUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 2202

**M.Sc. RESPIRATORY THERAPY
FIRST YEAR (Candidates admitted from 2019-2020 & 2020-2021 onwards)
PAPER II – APPLIED ASPECTS OF ANATOMY, PHYSIOLOGY AND
BIOCHEMISTRY
Q.P. Code : 282202**

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on: (2 x 20 = 40)

1. Discuss in detail about Lung. Add a note on bronchopulmonary segments and its applied aspects.
2. Enumerate the water soluble vitamins and Discuss in detail about vitamin B12 and its applied aspects.

II. Write Short Notes on: (10x6 = 60)

1. Anatomy of larynx and congenital anomalies.
2. Mechanism of Respiration.
3. Vitamin D – sources, function and applied aspects.
4. Sleep related breathing disorders.
5. Inborn errors of metabolism with examples.
6. Extracorporeal Membrane Oxygenation.
7. Respiratory alkalosis.
8. Postnatal lung development.
9. Essential minerals and their function.
10. Cardiac cycle.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1023]

OCTOBER 2023

Sub. Code: 2202

**M.Sc. RESPIRATORY THERAPY
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PAPER II – APPLIED ASPECTS OF ANATOMY, PHYSIOLOGY AND
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Q.P. Code: 282202

Time: Three hours

Maximum: 100 Marks

Answer ALL Questions

I. Elaborate on:

(2 x 20 = 40)

1. Write in detail about diffusion of gases across the alveolar membrane. Explain DLCO and its uses in diagnosis of lung diseases.
2. Discuss in detail the role of respiration in acid base balance. Discuss the interpretation of ABG.

II. Write notes on:

(10 x 6 = 60)

1. Ciliated columnar epithelium.
2. Oxygen dissociation curve.
3. Cheyne stokes respiration.
4. Muscles of inspiration.
5. Vitamin D.
6. Beta 2 receptors.
7. Cough reflex.
8. Respiratory Alkalosis.
9. Blood supply of lung.
10. Pleural fluid.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0524]

MAY 2024

Sub. Code: 2202

**M.Sc. RESPIRATORY THERAPY
FIRST YEAR (From 2020-2021 onwards)
PAPER II – APPLIED ASPECTS OF ANATOMY, PHYSIOLOGY AND
BIOCHEMISTRY**

Q.P. Code: 282202

Time: Three hours

Maximum: 100 Marks

Answer ALL Questions

I. Elaborate on:

(2 x 20 = 40)

1. Discuss in detail muscles of respiration and mechanics of respiration. Write about elastic recoil of lung and compliance of lung.
2. Write in detail about the histology of lung. Draw and explain the structure of cilia.

II. Write notes on:

(10 x 6 = 60)

1. Oxygen cascade.
2. Blood gas analysis.
3. Bronchopulmonary segments.
4. Secondary pulmonary lobule.
5. REM Sleep versus NREM Sleep.
6. Vitamin C.
7. Adenosine TriPhosphate.
8. Accessory muscles of respiration.
9. Metabolic acidosis.
10. Body plethysmograph.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1024]

OCTOBER 2024

Sub. Code: 2202

**M.Sc. RESPIRATORY THERAPY
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PAPER II – APPLIED ASPECTS OF ANATOMY, PHYSIOLOGY AND
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Q.P. Code: 282202

Time: Three hours

Maximum: 100 Marks

Answer ALL Questions

I. Elaborate on:

(2 x 20 = 40)

1. Enumerate the muscles involved in respiration and explain their actions and regulation. Explain the mechanism of respiration and its regulation.
2. Describe the steps of Krebs's citric acid cycle. Explain its importance. Why is it called common metabolic pathway?

II. Write notes on:

(10 x 6 = 60)

1. Anatomy of the mediastinum.
2. Cardio pulmonary resuscitation.
3. Metabolic acidosis and its causes.
4. Lung surfactant – composition, function and deficiency.
5. Anatomical aspects of pleura.
6. Broncho pulmonary segments.
7. Respiratory adaptation at high altitudes.
8. Iron – dietary sources, biochemical functions and deficiency.
9. Pulmonary circulation in fetal and adult conditions.
10. Stages of development of the respiratory system.

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Q.P. Code: 282202

Time: Three hours

Maximum: 100 Marks

Answer ALL Questions

I. Elaborate on:

(2 x 20 = 40)

1. A 70-year-old man with a history of COPD presents with confusion and dyspnea. His ABG show pH 7.28, PaCO₂ 60mmHG, HCO₃⁻ 30 mmol/L. Analyze this acid-base disorder and describe the possible compensatory mechanisms and treatment options.
2. Describe the feedback mechanisms that regulate respiration under normal and abnormal physiological conditions (e.g., exercise, hypoxia).

II. Write notes on:

(10 x 6 = 60)

1. What is the Frank-Starling law of the heart? Define systemic vascular resistance (SVR).
2. How does the position of the epiglottis differ in infants compared to adults?
3. Explain about urea cycle and its disorders.
4. What is the clinical significance of the anastomosis between bronchial and pulmonary circulations? Which vessels are involved in pulmonary embolism?
5. What is the Hering-Breuer reflex? Which part of the brain allows voluntary control over breathing?
6. Write briefly about clinical significance of HbA_{1c}.
7. Discuss about causes and clinical features of Hyponatremia.
8. What are the primary functions of the larynx? What is the effect of bilateral vocal cord paralysis on respiration?
9. Explain about copper metabolism and inborn errors related with copper metabolism.
10. Write briefly about polymerase chain reaction in Genetic techniques.
