**IQRA NATIONAL UNIVERSITY**

**DEPARTMENT OF ALLIED HEALTH SCIENCES**

**Final-Term Examination**

**DPT 2nd Semester**

**Course Title: Human Physiology II Instructor: Dr Sara Naeem**

**Time: 6 Hours Max Marks:50**

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ID: **16063**

SUBJECT: **PHYSIOLOGY**

DEPARTMENT: **DPT 2ND**

SECTION: **A**

**Q1. What would be the total lung capacity (TLC) if expiratory reserve volume ( ERV) is 1000 ml , (RV) residual volume is 1200 ml keeping the inspiratory capacity ( IC) as 3000 ml.**

**ANS:1**

**Total lung capacity = Residual volume + Inspiratory volume capacity**

**Total Lung Capacity = 1200 + 3000**

**Total Lung Capacity = 4200 ml**

**Q2. What is pulmonary edema . Enlist the muscles of inspiration and muscles of expiration.**

**ANS: 2**

**PULMONARY EDEMA:**

Pulmonary edema is a condition in which the lungs fill with fluid. Its also known as lung congestion, lung water, and pulmonary congestion. When pulmonary edema occurs, the body struggles to get enough oxygen and you start to have shortness of breath.

But timely treatment for pulmonary edema and its underlying cause can improve possible outcomes.

**SYMPTOMS OF PULMONARY EDEMA:**

In cases of pulmonary edema your body will struggle to gain oxygen. This is due to the amount of increasing fluid in the lungs preventing oxygen moving into the blood stream. Symptom may continue to worsen until you get treatment.

**MUSCLES OF RESIRATION:**

.DIAPHRAM

. EXTERNAL INTERCOSTAL

. STERNOCLEIDOMASTOID MUSCLES

. ANTERIOR SERRATI

. SCALNI

**MUSCLES OF EXPIRATION:**

**.** ABDOMINAL RECTI

. ABDOMINAL MUSCLES

. INTERNAL INTERCOSTAL

**Q3. Compare the properties of different blood groups. Also mark universal donor and universal recipient.**

**ANS:3**

**BLOOD GROUPS:**

Blood type A – if the red blood cell has only A molecules on it.

Blood type B—if the red blood cell has only B molecules on it.

Blood type AB--- If the red blood cell has a mixture of both A and B molecules.

Blood type O – if the red blood cell has neither A or B molecules.

**UNIVERSAL DONOR:**  O negative

**UNIVERSAL RECIPIENT:** AB positive

**Q4**. **Explain respiratory membrane . What are the factors that affect diffusion of gases across the membrane.**

**ANS;4**

**RESPIRATORY MEMBRANE:**

The membrane separating air within the alveoli from the blood with in pulmonary capillaries. It consists of the alveolar wall, the capillary wall, and their basement membrane.

**MAIN FACTORS THAT AFFECT DIFFUSION OF GASSES ACROSS THE MEMBRANE**:

**Membrane thickness**- the thinner the membrane, the faster the rate of diffusion.

**Membrane surface area**- the larger the surface area, the faster the rate of diffusion.

Pressure difference across the membrane. Diffusion coefficient of gas.

**Q5. What is the difference between anatomical dead space and physiological dead space. What are the clinical manifestations of pulmonary effusion.**

**ANS:5**

**DIFFERENCE BETWEEN ANATOMICAL DEAD SPACE AND PHYSIOLOGICAL DEAD SPACE:**

The volume of air taking up this space is called anatomic dead space. Physiologic dead space includes the dead space of the upper airways, but also accommodates for the dead space in alveoli that do not partake in gas.

**CLINICAL MANIFESTATIONS OF PULMONARY EFFUSION:**

Chest pain, Dry, nonproductive cough. Dyspnea (shortness of breath, or difficult, labored breathing)