

RSPT 1140 Assessment – Module A

1. Write the Henderson Hasselbalch Equation

$$pH = pK + \log \frac{[HCO_3^-]}{H_2CO_3}$$

2. What is the normal ratio of HCO_3 to H_2CO_3 in the blood? **20:1**
3. Which acid base parameter tells us about ventilation? **$PaCO_2$**
4. What are the normal values for the following?
- A. pH: **7.35 – 7.45**
 - B. $PaCO_2$: **35 – 45 mm Hg**
 - C. PaO_2 : **80 – 100 mm Hg**
 - D. HCO_3 : **22 – 26 mEq/L**
 - E. SaO_2 : **97-98%**
 - F. CaO_2 : **20 vol%**
5. When should a pulse oximeter **NOT** be used? **WHEN YOU SUSPECT CARBON MONOXIDE POISONING.**
6. Interpret the following arterial blood gas results:
- A. pH 7.20, $PaCO_2$ 66 torr, HCO_3 26 mEq/L, PaO_2 55 torr, FIO_2 .40
UNCOMPENSATED RESPIRATORY ACIDOSIS WITH MODERATE HYPOXEMIA
 - B. pH 7.60, $PaCO_2$ 20 torr, HCO_3 45 mEq/L, PaO_2 88 torr, FIO_2 .40
MIXED ALKALOSIS. TECHNICALLY, THIS IS A LAB ERROR. THE pH WOULD BE FAR MORE ALKALOTIC WITH THAT $PaCO_2$ AND HCO_3 . NORMOXEMIA
 - C. pH 7.45, $PaCO_2$ 20 torr, HCO_3 15 mEq/L, PaO_2 60 torr, FIO_2 .50
FULLY COMPENSATED RESPIRATORY ALKALOSIS WITH MILD HYPOXEMIA
 - D. pH 7.03, $PaCO_2$ 14 torr, HCO_3 8 mEq/L, PaO_2 80 torr, FIO_2 .30
PARTIALLY COMPENSATED METABOLIC ACIDOSIS WITH NORMOXEMIA.

7. Define and give an example of each

- A. Subjective Data:
 - i. **Orthopnea**
 - ii. **Dyspnea**
 - iii. **Sore Throat**
 - iv. **Chest Pain**
 - v. **Nauseated**
 - vi. **Can't Sleep**
 - vii. **Tired**
- B. Objective Data
 - i. **Blood Pressure**
 - ii. **Heart Rate**
 - iii. **Skin Rash**
 - iv. **Urine output**
 - v. **Neck vein distention**
 - vi. **Diaphoresis**
 - vii. **PaO₂**
 - viii. **Glucose level**

8. Name the four basic components of physical assessment

- A. **INSPECTION**
- B. **PALPATION**
- C. **PERCUSSION**
- D. **AUSCULTATION**

9. What are the vital signs that should be monitored during the initial patient assessment?

BLOOD PRESSURE, HEART RATE, RESPIRATORY RATE, TEMPERATURE, PULSE OXIMETRY

10. Define:

- A. Hypertension: **HIGHER THAN NORMAL BLOOD PRESSURE.**
- B. Hypotension: **LOWER THAN NORMAL BLOOD PRESSURE.**
- C. Syncope: **TRANSIENT LOSS OF CONSCIOUSNESS RESULTING FROM INADEQUATE BLOOD FLOW TO THE BRAIN.**
- D. Tussive syncope: **SYNCOPE ASSOCIATED WITH COUGHING.**
- E. Dysphagia: **DIFFICULTY SWALLOWING.**
- F. Diaphoresis: **PERSPIRATION, ESPECIALLY WHEN COPIOUS AND MEDICALLY INDUCED.**
- G. Orthopnea: **RESPIRATORY COMPLAINT OF DISCOMFORT IN ANY BUT AN ERECT SITTING OR STANDING POSITION.**
- H. Stridor: **A HARSH, HIGH-PITCHED SOUND IN INHALATION OR EXHALATION.**
- I. Bradypnea: **ABNORMAL SLOWNESS OF RESPIRATION.**

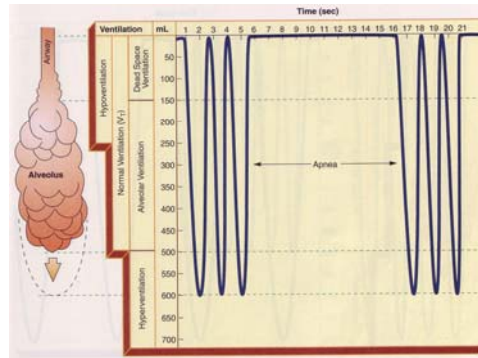
- J. Anasarca: **A GENERAL ACCUMULATION OF SEROUS FLUID IN VARIOUS TISSUES AND BODY CAVITIES.**
- K. Hemoptysis: **EXPECTORATION OF BLOOD.**
- L. Paradoxical Pulse or Pulsus paradoxus: **AN EXAGGERATION OF THE NORMAL VARIATION IN THE PULSE VOLUME WITH RESPIRATION. THE PULSE BECOMES WEAKER WITH INSPIRATION AND STRONGER WITH EXPIRATION. PULSUS PARADOXUS IS CHARACTERISTIC OF CONSTRICTIVE PERICARDITIS AND PERICARDIAL EFFUSION. THE CHANGES ARE INDEPENDENT OF CHANGES IN PULSE RATE.**
- M. Miosis: **CONSTRICTION OF THE PUPIL OF THE EYE, RESULTING FROM A NORMAL RESPONSE TO AN INCREASE IN LIGHT OR CAUSED BY CERTAIN DRUGS OR PATHOLOGICAL CONDITIONS.**
- N. Platypnea: **DIFFICULTY IN BREATHING WHEN UPRIGHT, RELIEVED BY LYING DOWN.**
- O. Afebrile: **WITHOUT FEVER.**
- P. Mydriasis: **PROLONGED ABNORMAL DILATATION OF THE PUPIL OF THE EYE CAUSED BY DISEASE OR A DRUG.**
- Q. Acrocyanosis: **A CIRCULATORY DISORDER IN WHICH THE HANDS, AND LESS COMMONLY THE FEET, ARE PERSISTENTLY COLD, BLUE, AND SWEATY.**
- R. Gladiolus: **THE LARGE MIDDLE SECTION OF THE STERNUM.**
- S. PERRLA: **PUPILS EQUAL, ROUND, REACTIVE TO LIGHT AND ACCOMMODATION.**
- T. Angle of Louis: **THE ANGLE CREATED BY THE JUNCTION OF MANUBRIUM AND THE GLADIOLUS OF THE STERNUM.**
- U. Pedal edema: **ABNORMAL SWELLING OF THE FEET.**
- V. Cachectic: **AFFECTED BY OR RELATED TO A STATE OF GENERAL ILL HEALTH AND MALNUTRITION MARKED BY WEAKNESS AND EMACIATION, USUALLY ASSOCIATED WITH SERIOUS DISEASE (e.g. TUBERCULOSIS, CANCER).**
- W. PMI: **POINT OF MAXIMAL IMPULSE.**
- X. Vesicular Breath Sounds: **THE NORMAL SOUNDS OF GAS RUSTLING OR SWISHING THROUGH THE SMALL BRONCHIOLES AND POSSIBLY THE ALVEOLI.**
- Y. Capillary refill: **THE RATE AT WHICH BLOOD REFILLS EMPTY CAPILLARIES. IT CAN BE MEASURED BY PRESSING A FINGERNAIL UNTIL IT TURNS WHITE, AND TAKING NOTE OF THE TIME NEEDED FOR COLOR TO RETURN ONCE THE NAIL IS RELEASED. THE CAPILLARY REFILL TIME (CRT) IS A COMMON MEASURE OF PERIPHERAL PERFUSION.**
- Z. Oriented x 3: **THE RECOGNITION OF ONE'S TEMPORAL, SPATIAL, AND PERSONAL RELATIONSHIPS AND ENVIRONMENT (TIME, PLACE, AND SELF).**
- AA. Glasgow Coma Scale: **A SCALE USED TO ASSESS LEVEL OF CONSCIOUSNESS AND REACTION TO STIMULI IN A NEUROLOGICALLY IMPAIRED PATIENT BASED ON PERFORMANCE**

IN THREE CATEGORIES: EYE OPENING, VERBAL RESPONSE-PERFORMANCE, AND MOTOR RESPONSIVENESS.

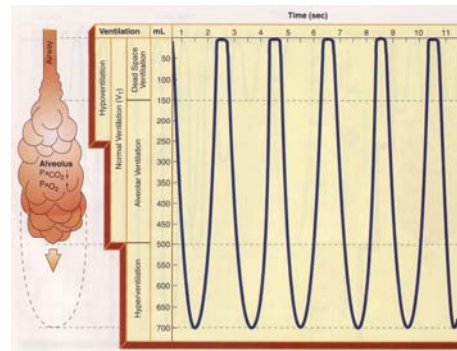
- i. A person with a normal level of consciousness would score **15** on the Glasgow Coma Scale.
- BB. Ptosis: **A DROOPING OF THE EYELID.**
- CC. Diplopia: **DOUBLE VISION**
- DD. Jugular venous distension: **ABNORMAL ENLARGEMENT OF THE JUGULAR VEINS, USUALLY INDICATING INCREASE CENTRAL VENOUS PRESSURE.**
- EE. Cyanosis: **A DARK BLUISH OR PURPLISH COLORATION OF THE SKIN, NAIL BEDS, LIPS, OR MUCOUS MEMBRANES DUE TO DEFICIENT OXYGENATION OF THE BLOOD**
 - i. What criterion has to be present for cyanosis to be seen? **EVIDENT WHEN REDUCED HEMOGLOBIN IN THE BLOOD EXCEEDS 5 GRAMS PER 100 ML.**
- FF. Hepatomegaly: **ENLARGEMENT OF THE LIVER.**
- GG. Ascites: **ACCUMULATION OF SEROUS FLUID IN THE PERITONEAL CAVITY.**
- HH. Pyrexia: **FEVER**
- II. Pulse Pressure: **THE VARIATION IN BLOOD PRESURE OCCURRING IN AN ARTERY DURING THE CARDIAC CYCLE. THE DIFFERENCE BETWEEN THE SYSTOLIC AND DIASTOLIC PRESSURES.**

11. Draw a picture of each of the following ventilatory patterns:

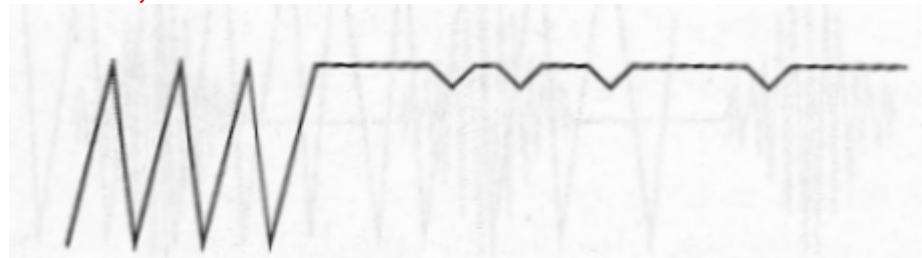
A. Biot's



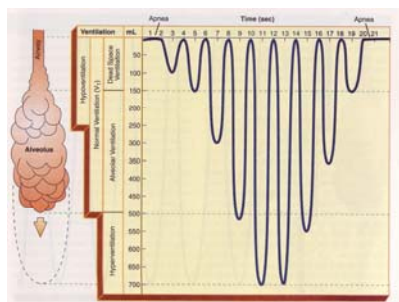
B. Kussmaul's



C. Apneustic: **APNEUSTIC RESPIRATION IS AN ABNORMAL PATTERN OF BREATHING CHARACTERIZED BY DEEP, GASPING INSPIRATION WITH A PAUSE AT FULL INSPIRATION FOLLOWED BY A BRIEF, INSUFFICIENT RELEASE.**



D. Cheyne-Stokes



12. What type of breathing pattern is associated with ventilatory muscle fatigue?
PARADOXICAL RESPIRATION

13. What is the normal for the following:

- A. FEV_{0.5} **60%**
- B. FEV_{1.0} **83%**
- C. FEV_{2.0} **94%**
- D. FEV_{3.0} **97%**

14. Draw the table of lung volumes and capacities and give the normal values

TOTAL LUNG CAPACITY (6000 ml)	INSPIRATORY RESERVE VOLUME (3100 ml)	VITAL CAPACITY (4800 ml)	INSPIRATORY CAPACITY (3600 ml)
	TIDAL VOLUME (500 ml)		FUNCTIONAL RESIDUAL CAPACITY (2400 ml)
	EXPIRATORY RESERVE VOLUME (1200 ml)		
	RESIDUAL VOLUME (1200 ml)	RESIDUAL VOLUME (1200 ml)	

15. A PaCO₂ level of 55 is consistent with

- I. **Hypercapnia**
- II. Hypocapnia
- III. Eucapnic
- IV. **Hypoventilation**
- V. Hyperventilation

- A. V only
- B. I and II only
- C. II and III only
- D. III and IV only
- E. **I and IV only**

16. What does acute ventilatory failure (respiratory failure) mean to you? **AN INCREASED P_aCO₂ ACCOMPANIED BY ACIDEMIA.**

17. List three indications for mechanical ventilation.

- A. **ACUTE VENTILATORY FAILURE**
- B. **IMPENDING VENTILATORY FAILURE**

C. **APNEA**

18. Indicate which of the following is subjective data and which is objective data by placing and S or O next to the sign/symptom
- A. HR **O**
 - B. Orthopnea **S**
 - C. Dyspnea **S**
 - D. Urine output **O**
 - E. Sore throat **S**
 - F. Chest pain **S**
 - G. FEV₁ **O**
 - H. PaCO₂ **O**
 - I. Neck vein distention **O**
 - J. Itchy **S**
19. List the 4 components of the physical exam
- B. **INSPECTION**
 - C. **PALPATION**
 - D. **PERCUSSION**
 - A. **AUSCULTATION**
20. When conducting a physical exam, what do the initials HEENT stand for? **Head, Ears, Eyes, Nose, Throat**
21. LOC stands for **LEVEL OF CONSCIOUSNESS.**
22. List the 5 protocols used to management therapy
- A. **OXYGEN THERAPY PROTOCOL**
 - B. **HYPERINFLATION PROTOCOL**
 - C. **BRONCHIAL HYGIENE PROTOCOL**
 - D. **AEROSOLIZED MEDICATION PROTOCOL**
 - E. **MECHANICAL VENTILATION PROTOCOL**
23. Define Etiology. **FACTORS INVOLVED IN THE DEVELOPMENT OF THE DISEASE; "CAUSE" OF THE DISEASE**
24. Define Clinical Manifestations. **SIGNS AND SYMPTOMS THAT RESULT FROM DISEASE.**