



**AMREF INTERNATIONAL UNIVERSITY**  
**SCHOOL OF MEDICAL SCIENCES**  
**DEPARTMENT OF REHABILITATION MEDICINE**  
**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL 2025**

**UNIT CODE: PHT 322**

**UNIT NAME: Cardiopulmonary in Physiotherapy**

**DATE: 10th APRIL 2025**

**TIME: 9am-11am**

**INSTRUCTIONS**

1. All students will have two (2) hours to complete the examination
2. This is an online exam, Attempt all questions as per the instruction
3. It is the student's responsibility to report any page and number missing in this paper.
4. Check that the paper is complete
5. Total number of pages is 6 including the cover.
6. Read through the paper quickly before you start.
7. Upon finishing the exam paper, on submission, the message 'Your examination has been submitted' will appear.

**TOTAL: \_\_\_\_\_/70**

**PERCENT: \_\_\_\_\_/100%**

**POINTS EARNED TOWARDS FINAL GRADE \_\_\_\_\_/70**

**Section A. Multiple choice questions. Answer all the question. (30 Marks)**

1. All the following are paranasal sinuses except?
  - a. Maxillary sinuses
  - b. Mandibular sinuses
  - c. Frontal sinuses
  - d. Ethmoidal sinuses
2. Which one of the following is the odd one out?
  - a. Nasopharynx
  - b. Laryngopharynx
  - c. Oropharynx
  - d. Palatopharynx
3. True or false, when the muscles of the vocal cords are contracted, they abduct and close the airways while they are relaxed, they are adduct and open the airways.
  - a. True
  - b. False
4. The trachea extends downwards and divides into the left and right main bronchi at the carina at the level of?
  - a. T1
  - b. T5
  - c. C2
  - d. T8
5. All the following air passageways takes part in respiration except?
  - a. Respiratory bronchioles
  - b. Alveolar ducts
  - c. Alveoli
  - d. Terminal bronchioles
6. All the following structures enter the lungs at the hilum except?

- a. Pulmonary veins
  - b. Pulmonary arteries
  - c. Bronchi
  - d. Aorta
7. The visceral pleura is attached to the chest wall while the parietal pleura is attached to the lung surface
- a. True
  - b. False
8. All the following statements are true except?
- a. The right main bronchus is wider than the left one
  - b. The right main bronchus is narrower than the left one
  - c. The right main bronchus is more vertical than the left one
  - d. The left main bronchus is longer than the right one
9. Respiratory functions of the airway starts from which generation of the airway?
- a. Generation 10
  - b. Generation 1
  - c. Generation 17
  - d. None of the above
10. The surface area of the alveoli can be described as the size of?
- a. Tennis court
  - b. Football pitch
  - c. Basketball court
  - d. None of the above
11. Which one of the following is the correct order of examination of the cardiprespiratory system?
- a. Inspection, palpation, auscultation and percussion
  - b. Inspection, palpation, percussion, and auscultation
  - c. Inspection, percussion, auscultation and palpation

- d. Auscultation, percussion, palpation and inspection
12. External intercostal muscles take part in normal quiet inspiration while internal intercostal muscles take part in active expiration
- a. True
  - b. False
13. When the diaphragm relaxes, its central tendon is found at approximately the level of?
- a. T12
  - b. T8
  - c. T5
  - d. C7
14. Which one of the following chest wall movements is correctly matched with its description?
- a. Anteroposterior movement – pump handle
  - b. Anteroposterior movement – bucket handle
  - c. Lateral movement – pump handle
  - d. Vertical movement - bucket handle
15. Which one of the following statements is false?
- a. Breathing has three phases (inspiration, expiration and a pause)
  - b. Inspiration is an active process and require energy
  - c. Expiration is an active process and require energy
  - d. Expiration phase is generally longer than inspiration phase
16. Veins can also be called capacitance vessels capillaries can be referred to as resistance vessels
- a. True
  - b. False
17. Resistance to blood flow can be influenced by?
- a. The diameter of the blood vessel
  - b. The length of the blood vessel

- c. The viscosity of the blood
  - d. All the above
18. Local blood flow is influenced by?
- a. Release of metabolic waste products
  - b. Hypoxia
  - c. Release of vasodilator chemicals
  - d. All the above
19. All the following statements are true about the heart except?
- a. It lies obliquely in the thoracic cavity
  - b. The base is found at the level of the second rib
  - c. The apex is found at the level of the fifth intercostal space
  - d. It is about twice the size of an individuals' fist
20. The layers of the heart wall consist of?
- a. The pericardium only
  - b. The myocardium and the endocardium only
  - c. Pericardium, myocardium and the endocardium
  - d. None of the above
21. The following valves have three semilunar cusps except?
- a. Mitral valves
  - b. Tricuspid valve
  - c. Aortic valves
  - d. Pulmonary valves
22. Blood supply to the myocardium is mainly by?
- a. Coronary arteries
  - b. Aorta
  - c. Pulmonary arteries

- d. None of the above
23. The normal heart rate ranges between?
- 40 – 80 bpm
  - 60 – 100 bpm
  - 72 - 74 bpm
  - All the above
24. Which one of the following factors affect heart rate?
- Age
  - Autonomic nervous stimulation
  - Activity and exercise
  - Baroreceptor reflex
  - All the above
25. Which one of the following cardiac cycles takes the longest time?
- Atrial systole
  - Ventricular systole
  - Complete cardiac diastole
  - None of the above
26. Which one of the following statements is correct?
- Normal heart sounds are produced by opening of valves
  - Normal heart sounds are produced by both opening and closure of valves
  - Normal heart sounds are produced only by closure of valves
  - All the above statements are correct
27. The first heart sound “lup” is produced by?
- Opening of atrioventricular valves
  - Closure of the atrioventricular valves
  - Opening of both the aortic and pulmonary valves

- d. Closure of both the aortic and pulmonary valves
28. The P wave on an ECG tracing corresponds to?
- a. Atrial depolarization
  - b. Ventricular depolarization
  - c. Ventricular repolarization
  - d. Atrial repolarization
29. QRS complex on an ECG tracing corresponds to?
- a. Atrial depolarization
  - b. Ventricular depolarization
  - c. Ventricular repolarization
  - d. Atrial repolarization
30. Tachycardia is defined as heart rate more than?
- a. 60 bpm
  - b. 80 bpm
  - c. 100 bpm
  - d. None of the above

(Answer C)

**SECTION B. SHORT STRUCTURED QUESTIONS (ANSWER ALL QUESTIONS) (20 MARKS)**

1. Differentiate between ventilation and respiration (4 marks)
2. Differentiate between external respiration and internal respiration (4 marks)
3. List and explain four respiratory functions of the nose (4 marks)
4. Differentiate between elasticity and compliance of the chest wall (4 marks)
5. Differentiate between pulmonary circulation and systemic circulation (4 marks)

**SECTION C (ANSWER ANY TWO QUESTIONS) (20 Marks)**

1. With the aid of a diagram, describe any five of the lung volumes and capacities (10 Marks)

2.

- a. Define anatomical dead space (2 marks)
- b. Discuss the three ways by which carbon dioxide is transported in the blood (6 Marks)
- c. Discuss four factors that influence respiration (2 Marks)

3.

- a. Define an end artery (2 marks)
- b. Differentiate between capillaries and sinusoids giving one example of where they may be found (4 marks)
- c. Discuss any four findings that you may be looking for during general examination of a cardiac/respiratory patient stating their clinical significance (4 Marks)