



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**SECOND YEAR, THIRD TRIMESTER EXAMINATIONS**

**FOR THE DEGREE**

**OF**

**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**COURSE CODE: BSP 326**

**COURSE TITLE: CARDIORESPIRATORY PHYSIOTHERAPY II**

**DATE: THURSDAY 18<sup>TH</sup> AUGUST 2022**

**TIME 8:00-11:00 AM**

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**INSTRUCTIONS TO CANDIDATES**

**Answer all Questions**

Sec A: Multiple Choice Questions (MCQ) 20 Marks

Sec B: Short Answer Questions (SAQ) (40 marks)

Sec C: Long Answer Questions (LAQ) (40 marks)

**TIME: 3 Hours**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

## SECTION A: MULTIPLE CHOICE QUESTIONS (20 Marks)

1. Dyspnea, cough, expectoration, weakness, and edema are classic signs and symptoms of which of the following conditions?
  - A. Pericarditis
  - B. Hypertension
  - C. Obliterative
  - D. Restrictive
2. Physical assessment of patients with cardiopulmonary signs and symptoms involves observation of obvious chest deformities. Which of the following describes a pectus carinatum?
  - A. A chest with sternal protrusion
  - B. A chest with sternum traction
  - C. Presence of a gibbus
  - D. Kyphoscoliosis
3. Which of the following is the main aim of incentive spirometer in cardiopulmonary rehabilitation?
  - A. To encourage patients to take a deep breath and produce a sustained maximal inspiration
  - B. Can be used to teach coughing and huffing
  - C. To rehabilitate the cough reflex
  - D. To restore cough depressed cough reflex
4. A patient develops a pulmonary embolism post operatively. The patient is haemodynamically stable and began anticoagulant yesterday. Which of the following procedures would be inappropriate?
  - A. deep and segmental breathing
  - B. extended expiration
  - C. postural drainage
  - D. percussions and vibrations
5. Exercise can cause a significant increase in the body's cardiac output. During exercise there is a major redistribution of the elevated cardiac output. During mild to moderate exercise what changes would you expect to take place?
  - A. an increase in cerebral and coronary blood flow
  - B. an increase in cerebral and active skeletal muscles blood flow
  - C. an increase in coronary and active skeletal muscle blood flow
  - D. a decrease in cerebral and coronary blood flow
6. There are a variety of factors which can significantly influence normal respiration including age, sex, stature and exercise. Which statement describing these factors is not accurate?
  - A. The respiratory rate of a newborn is between 30 and 60 breaths per minute.
  - B. Men generally have larger vital capacity than women.
  - C. Stout or obese subjects generally have a larger vital capacity than tall, thin individuals
  - D. Respiratory rate and depth will increase as a result of increased oxygen consumption and carbon dioxide production
7. A client with COPD complains of headache and a "racing" heart; he is also restless and somewhat confused. Which problem would the nurse suspect?
  - A. Respiratory acidosis

- B. Respiratory alkalosis
  - C. Metabolic acidosis
  - D. Metabolic alkalosis
8. Which of the following is a function of the Atrioventricular valves?
    - A. Prevent backflow of blood from the ventricles to the atria during systole
    - B. Prevent backflow from the aorta and pulmonary arteries into the ventricles during diastole
    - C. Both a and b
    - D. None of the above
  9. Mrs. Brenda, a 75-year-old presents with shortness of breath on exertion. On further questioning she is unable to lie flat due to breathlessness and has woken up during the night gasping for air. She has a history of hypertension. On examination there is bibasal crackles. The CXR reveals small bilateral pleural effusions, upper lobe diversion and bat wing oedema. What is the most likely diagnosis?
    - A. Pneumonia
    - B. Pulmonary oedema
    - C. Cryptogenic fibrosingalveolitis
    - D. Interstitial Lung Disease
  10. A patient develops a pulmonary embolism post operatively. The patient is haemodynamically stable and began anticoagulant yesterday. Which of the following procedures would be inappropriate?
    - A. deep and segmental breathing
    - B. extended expiration
    - C. postural drainage
    - D. percussions and vibrations
  11. Test of airway measures airway caliber. Most test of the airway patency examines expiratory functions. Which is not one of the test?
    - A. (a) Spirometry.
    - B. (b) Peak expiratory flow (PEF).
    - C. (c) Peak inspiratory flow (PIF).
    - D. (d) Flow –volume curves.
  12. Blood is sometimes retained in heart or lungs due to malfunctioning activity of heart pumping which can lead to fatal condition is called
    - A. Angina attack
    - B. Heart failure
    - C. Cardiac arrest
    - D. Congestive heart failure
  13. If the lung were punctured, which of the following would happen?
    - A. The lung would collapse on the side of the puncture.
    - B. Both the lung and the chest wall would collapse on the side of the puncture.
    - C. The relaxation pressure of the chest wall would increase until it surpassed the atmospheric.
    - D. The relaxation pressure of the chest wall would increase, but stop before it reached atmospheric pressure.
  14. Which of the following is NOT an effector of respiration?
    - A. Heart

- B. Diaphragm
  - C. Intercostal
  - D. Trapezius.
15. Which of the following is the first branching of the bronchial tree that has gas exchanging capabilities?
- A. Terminal bronchioles.
  - B. Respiratory bronchioles.
  - C. Alveoli
  - D. Segmental bronchioles.
16. A therapist instructs a patient to expire maximally after taking a maximal inspiration. The therapist can use these instructions to measure the patient's?
- A. Expiratory reserve volume
  - B. Aspiratory reserve volume
  - C. Total lung capacity
  - D. Vital capacity
17. A patient in a phase I cardiac rehabilitation program begins walking with assistance, which of the following monitoring techniques would not be necessary in a phase 1 program?
- A. Blood pressure
  - B. Electrocardiography
  - C. Electromyography
  - D. Heart rate
18. Which of the following is not a realistic goal of a phase II cardiac rehabilitation program?
- A. To increase exercise capacity and endurance
  - B. To teach the patient self-monitoring techniques
  - C. To assess cardiovascular responses to work
  - D. All of the above are realistic goals
19. Which one of the following is true about cardiac reserve?
- A. Cardiac reserve is the difference between resting and maximal cardiac output
  - B. Cardiac reserve is the amount of blood pumped out by a ventricle with each beat
  - C. Cardiac reserve is the amount of blood pumped by each ventricle in one second.
  - D. Cardiac reserve is the number of heart beats per minute.
20. Which one of the following statement is true?
- A. Stroke volume is the amount of blood remaining in ventricle after contraction
  - B. Stroke volume is the end diastolic volume minus end systolic volume
  - C. Stroke volume is the amount of blood collected in a ventricle during diastole
  - D. Stroke volume is the back pressure exerted by blood in large arteries leaving the heart

## **SECTION B: SHORT ANSWER QUESTION (40 Marks)**

1. Physiotherapy students were discussing on how to identify abnormal breath sounds using a stethoscope. Describe three (3) abnormal breath sounds that they discussed.  
(5 marks)
2. A physiotherapy student at an outpatient physiotherapy clinic was studying a chest x-ray of fractured ribs. The student referred to her notes to be sure the class to which the fractured ribs belonged to. Identify the three (3) general classes of ribs that she read in her notes.  
(5 marks)
3. During respiration, different muscles contract and relax simultaneously to allow for the process to occur. Classify the muscles of respiration. (5 marks)
4. You have been assigned to cover the surgical ward in Kenyatta National Hospital (KNH), you come across a patient with a chest drain 2days post-surgery. Briefly describe the physiotherapy management for the patient.
5. Discuss pulmonary rehabilitation (5 marks)
6. Describe any five (5) primary goals of cardiac rehabilitation. (5 marks)
7. Define spirometry and describe the procedure (5 marks)
8. Describe any two (2) normal and three (3) abnormal breath sounds (5 Marks)

## **SECTION C: LONG ANSWER QUESTIONS (40 Marks)**

1. Discuss the phases of cardiac rehabilitation (20 marks)
2. Discuss the physiotherapy management of an intubated patient in an intensive care unit and immediately after extubation (20 Marks)