



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**SECOND YEAR, FIRST TRIMESTER EXAMINATIONS  
FOR THE DEGREE**

**OF**

**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**COURSE CODE: BSP 316**

**COURSE TITLE: CARDIO-RESPIRATORY AND GENERAL  
PHYSIOTHERAPY I**

**DATE: TUESDAY 19<sup>TH</sup> APRIL 2022**

**TIME: 2:00-5:00 PM**

**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.*



**SEC A: MULTIPLE CHOICE QUESTIONS (MCQ) 20 MARK**

1. Breathing involve the process of inspiration and expiration.to increase the intrathoracic pressure, the inspiration muscles increase the volume of the thoracic cavity. This movement is termed as?
  - a) Relaxation of the rib cage.
  - b) Pump handle movements
  - c) Bucket handle and pump handle movements of the ribs and sternum
  - d) Bucket handle movements
2. The primary function of the lungs is to deliver oxygen to the gas-exchange surfaces and exhaust carbon dioxide to the atmosphere. This function depends entirely on the following with an exception of one,
  - a) Patency of the tubes.
  - b) Consistency of the lungs.
  - c) The age of the individual.
  - d) Power of the respiratory muscles.
3. Test of airway measures airway caliber. Most test of the airway patency examines expiratory functions. Which is not one of the test?
  - a) Spirometry.
  - b) Peak expiratory flow (PEF).
  - c) Peak inspiratory flow(PIF).
  - d) Flow –volume curves.
4. A patient with cystic fibrosis is receiving postural drainage and percussion for the right lung's middle lobe. What is the MOST appropriate patient position?
  - a) Supine on a wedge with the left shoulder elevated on pillows with the head lower than the pelvis.
  - b) Supine on a wedge with the right shoulder elevated on pillows with the head lower than the pelvis.
  - c) Prone with the right shoulder elevated on pillows and the head on the same plane as the pelvis.

d) Prone with the left shoulder elevated on pillows and the head on the same plane as the pelvis.

5. Which one of the following is not one of the peripheral changes of exercise training?

- a) Increased capitalization.
- b) Reduced myoglobin.
- c) Increased oxidative enzyme activity.
- d) Increased number and size of mitochondria.

6. Laboratory estimation of exercise capacity is done when?

- a) Patient lying in bed.
- b) Patient standing.
- c) After the patient has completed the exercises.
- d) On progressive maximal test and is completed when unable to continue.

7. Which one of the following is not a correct description?

- a) Chest clapping is done using a cupped hand with rhythmical flexion and extension of the wrist.
- b) In chest shaking, hands are placed on the chest wall and during expiration a course vibration action is done.
- c) In vibration, hands are placed on the chest wall and fine vibrations is done.
- d) Gravity assisted positioning is also known as chest drainage.

8. The aim of assessment of the respiratory system is to identify patient's problems that will focus of the choice of physiotherapy intervention and rehabilitation approaches.

Which of the following patient problems is suggestive of secretions related problem?

- a) Shift of mediastinum
- b) Drooping of shoulder
- c) Crowding of rib
- d) Ineffective cough

9. Physical activity has been hypothesized to decrease the occurrence and severity of coronary heart disease. Which of the following does not occur as a result of regular training program
- a) An increase in coronary collateral vascularization
  - b) An increase in serum lipid levels
  - c) An increase in red blood cell mass and blood volume
  - d) An increase in myocardial efficiency.
10. Restrictive lung diseases limit to varying degrees the maximum volume of air that can be inhaled and exhaled. Which of the following is a restrictive lung disease?
- a) Asthma
  - b) Cystic fibrosis
  - c) Pneumonia
  - d) Emphysema
11. Immediately following strenuous and vigorous exercise, which of the following is most likely to occur?
- a) Blood will be rapidly diverted to the digestive organs
  - b) The skin will be cold and clammy
  - c) Capillaries of the active muscles will be engorged with blood
  - d) Blood flow to the kidneys quickly increases
12. Listening to the Breathing Cycle at Rest and During Perturbation you discover that your patient has short inspiratory and prolonged expiration. Which one is the most likely condition?
- a) Restrictive lung disease
  - b) COPD
  - c) Combined COPD and Restrictive lung disease
  - d) None of the above
13. The bell of the stethoscope is mostly used to auscultate for?
- a) low-frequency sounds
  - b) high-frequency sounds
  - c) Combined low and high sounds
  - d) None

14. While auscultating a patient you hear vesicular sounds, early-inspiratory crackles and possible rhonchi and wheezing, resonant to hyper resonant on percussion and Normal fremitus. This can be a description of?
- a) Bronchiectasis
  - b) Emphysema
  - c) Bronchitis
  - d) Cystic fibrosis
15. How do you calculate how much inspired air actually ventilates the alveoli during one minute?
- a) Subtract the volume of dead space from the tidal volume.
  - b) Subtract both the dead space volume that was already in the lungs plus the dead space of the inspired air that won't reach the alveoli from the tidal volume.
  - c) Subtract the volume of dead space from the tidal volume and multiply it by the number of breaths per minute.
  - d) It is equal to the tidal volume times the frequency of breathing
16. Which one is one of the methods used to directly and indirectly Evaluate Chest Wall Motion and Diaphragmatic Excursion
- a) Laryngoscopy
  - b) CT scan
  - c) Pulmonary function test results
  - d) Maximal expiratory and inspiratory mouth pressures
17. When analyzing Arterial Blood Gasses, the compensatory ability of the body to manage an acidic or alkalotic environment is reflected by?
- a) The concentration of bicarbonate ( $\text{HCO}_3^-$  and  $\text{PaCO}_2$ )
  - b) The oxygen concentration
  - c) The concentration of only  $\text{PaCO}_2$
  - d) The concentration of only  $\text{HCO}_3^-$
18. In Pectus excavatum the chest is?

- a) Pigeon
- b) Funnel
- c) Both pigeon and funnel
- d) Kyphoscoliosis

19. Which of the following systems is the most likely origin of pain the client describes as knife-like chest pain that increases in intensity with inspiration?

- a) Cardiac
- b) Gastrointestinal
- c) Musculoskeletal
- d) Pulmonary

20. A newborn infant presents with cyanotic heart disease and fails to thrive. On examination of the heart, it was revealed that the aorta arose from the right ventricle and the pulmonary trunk arose from the left ventricle. What is the name given to this type of cardiac malformation?

- a) Patent ductus arteriosus
- b) Transposition of the great vessels
- c) Tetralogy of Fallot
- d) Ventricular septal defect (VSD)

#### SECTION B-SHORT ANSWERS. (40 MARKS)

1. Discuss any four (4) relative criteria necessary for initiation of anaerobic exercise training program for cardiac patients. (8 marks)
2. Describe any eight (8) risk factors for lower extremity thrombus formation (8 Marks)
3. Discuss any four (4) musculoskeletal causes of restrictive lung dysfunctions (8 Marks)
4. Chronic obstructive pulmonary diseases (COPDs) are diseases of the airways which produce obstruction to expiratory airflow. Describe five (5) problems related to airflow obstruction. (8 marks)
5. Describe four (4) physical therapy interventions for patients with Asthma (8 Marks)

### SECTION C-LONG ESSAYS (40 MARKS)

1. Exercise testing continues to be the single most important non-invasive procedure used in the diagnosis and management of cardiac patients. It involves systematically and progressively increasing the oxygen demand and evaluating the response to the increased demand. (20 marks)
  - a) Discuss any four (4) normal exercise testing modes of exercises. (8 Marks)
  - b) List any four (4) indications for exercise stress testing (8 Marks)
  - c) Describe any four contraindications to exercise stress testing. (4 Marks)
2. Postural drainage is one of the airways clearing techniques. (20marks)
  - a) Define it and describe how the procedure is done. (8 Marks)
  - b) Describe any four (4) abnormal breathing patterns commonly encountered in the assessment of patients with respiratory problems (8 Marks)
  - c) Describe any four (6) relative contraindication for percussion and vibration (6 Marks)