



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 322 **UNIT NAME: Cardiopulmonary Physiotherapy (TJC)**
DATE: Wednesday- 11 -12-2024
TIME: TWO HOURS
START: 6PM **STOP : 8PM**

INSTRUCTIONS (physical exams)

1. Do not write on this question paper
(Marks and questions distribution as per program curriculum.)

INSTRUCTIONS (Online examinations)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This online exam shall take 2 Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
10. In case you have any questions call the invigilator for this exam on Tel. 0705833434 and or the Head of Department on Tel 0720491032
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

Section A. Multiple Choice Questions and true and false answer. Answer all the questions

1. Fine crackles are
 - A. heard during inspiration and indicate alveolar opening.
 - B. heard during expiration and indicate alveolar opening.
 - C. heard during inspiration and indicate air moving through secretions.
 - D. heard during expiration and indicate air moving through secretions.

2. Using the diagnostic procedure called egophony (asking the client to say "ee". The sound you hear when auscultating the left lower lobe sounds like a distant "ee", your assumption is that the underlying lung is...
 - A. Atelectatic.
 - B. Hyper-inflated.
 - C. Consolidated.
 - D. Absent.

3. An effective cough is able to move secretions _____.
 - A. From about the 5th generation of the bronchial tree.
 - B. From about the 9th generation of the bronchial tree.
 - C. From about the 7th generation of the bronchial tree.
 - D. From the carina.

4. In questioning the patient about his symptoms, he remarks he has been experiencing intermittent right arm discomfort for the past day; a dull ache that seems to be associated with getting up and moving around the room. He has no chest discomfort, however, and the arm ache seems to go away pretty quickly. Since he doesn't think this is a big deal and it just started, he's only told you about this because you're the PT and arm pain is more likely to be a muscle strain. Your plan for the day was to get him out of bed and perform a 6-minute walk test. Does your plan change? Pick the best option:
 - A. The symptoms are atypical - proceed with the test and monitor his symptoms.
 - B. Walking him will help you decide if this is arm strain or something else, perhaps cardiac, so you'll make sure you check his ECG during exercise - defer the test but bring a bedside pedal unit or a bike for activity.
 - C. Excuse yourself and immediately discuss his symptoms with the nurse or physician, if available.
 - D. Defer the 6-minute walk test, substitute with bed mobility exercise and determine to check back in later.

5. You are examining a 63-year-old patient recently admitted for chest discomfort and shortness of breath. He has a history of an anterior wall myocardial infarction and hypertension. Upon exam, you observe bilateral jugular venous distension. This is most likely associated with:
 - A. Another myocardial infarction
 - B. Pulmonary embolism

- C. Heart failure
 - D. Cor Pulmonale
 - E. Stroke
6. Which of the following is a singular sign of central cyanosis?
- A. Blue tinged fingers or toes.
 - B. Blue tinged tip of the nose.
 - C. Blue tinged mucous membranes.
 - D. Blue tinged nail beds.
 - E. Blue tinged ear lobes.
7. Eupnea defined.
- A. Normal rate, normal depth, regular rhythm
 - B. Fast rate, shallow depth, regular rhythm
 - C. Slow rate, normal depth, regular rhythm
 - D. Rapid rate, shallow depth, regular rhythm
8. Atrial fibrillation is common, especially among older adults, and is considered benign if the patient is asymptomatic.
- A) True
 - B) False
9. Bronchovesicular breath sounds are
- A. soft, medium pitched sounds that are heard longer on the expiratory phase than the inspiratory phase.
 - B. soft, medium pitched sounds that are heard equally on inspiration and expiration.
 - C. soft, medium pitched sounds that are heard longer on the inspiratory phase than the expiratory phase.
10. The Professorial position adopted by individuals with significant pulmonary disease/dysfunction is an adaptation to help facilitate the recruitment of the accessory muscle of respiration.
- A) True
 - B) False
11. Polyphonic or musical wheezes indicate diffuse airway obstructions.
- A) True
 - B) False
12. When using mediate percussion, you find that the left upper lobe is hyper-resonant. This finding confirms that there is a mucous plug present in a proximal airway(s).
- A) True
 - B) False
13. When assessing the chest mobility of the upper anterior chest wall, for the most part, you are seeing/feeling "pump handle" motion.

- A. True
 - B. False
14. Unilateral jugular vein distention is associated with an exacerbation of Cor Pulmonale.
- A) True
 - B) False
15. During a full inspiration the lower lobe on the posterior aspect can be identified using mediate percussion down to the T12 level.
- A) True
 - B) False
16. On the anterior aspect of the chest, bronchovesicular breath sounds are heard over the carina and the L/R main stem bronchi.
- A) True
 - B) False
17. A fast and irregularly, irregular pulse suggests?
- A. Frequent Premature Atrial Contractions
 - B. Atrial fibrillation
 - C. Ventricular fibrillation
 - D. Frequent Premature Ventricular Contractions
 - E. Bradycardia
18. Which of the following statements regarding ejection fraction is incorrect?
- A. Normal ejection fractions range from 55% to 75%.
 - B. Ejection fraction is used as a measure to understand how the heart is functioning.
 - C. Ejection fraction refers to the amount of blood pumped out of the left ventricle.
 - D. A low ejection fraction could be a sign of ventricular muscle weakness or valvular leakage.
 - E. A high ejection fraction could be a sign of hypertrophic conditions such as hypertrophic cardiomyopathy.
19. Which of the following statements about Rheumatic Fever is incorrect?
- A. Rheumatic fever is most prevalent in children.
 - B. Damage to the heart from rheumatic fever can ultimately result in heart failure.
 - C. A cardinal sign of rheumatic fever is joint pain that can migrate from joint to joint during the course of the infection.
 - D. Rheumatic fever is currently more common in the developing world.
 - E. Cardiac muscle is at risk for damage in 50% of rheumatic fever cases.

20. Which of the following has the greatest odds ratio for the development of peripheral artery disease?
- A. Being male.
 - B. Being Hispanic.
 - C. Smoking.
 - D. Hypertension.
 - E. Renal insufficiency.
21. Heart failure is a clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of a ventricle to fill with or eject blood.
- A) True
 - B) False
22. Persons with peripheral artery disease are at an increased risk for stroke.
- A) True
 - B) False
23. Cor Pulmonale can refer to either left or right heart failure, as long as it is affection the lungs.
- A) True
 - B) False
24. Although a conservative approach to the management of a patent ductus arteriosus or patent foramen ovale is the preferred choice if, necessary both can be well managed through cardiac catheterization or a surgery.
- A) True
 - B) False
25. After a pace maker is placed, overhead movements of the left arm are typically restricted for 2 weeks.
- A) True
 - B) False
26. With prolonged bed rest there is a change in where the bulk of the plasma volume resides, this is called a _____.
- A. Central fluid shift
 - B. Peripheral fluid shift
 - C. Central fluid shunt
 - D. Peripheral fluid shunt
27. The long-term consequence of prolonged bed rest is a/an _____ in plasma volume.
- A. Decrease
 - B. Increase
 - C. No change

28. The consequence of this change in plasma volume is a/an _____ in resting heart rate.
- A. Decrease
 - B. Increase
 - C. No change
29. With prolonged bed rest what happens to pulmonary residual volume?
- A. Decrease
 - B. Increase
 - C. No change
30. With prolonged bed rest what happens to pulmonary forced expiratory volume?
- A. Decrease
 - B. Increase
 - C. No change
31. With prolonged bed rest what happens to the spontaneous cough?
- A. Decrease
 - B. Increase
 - C. No change
32. Left heart failure is the most common form of heart failure. Which of the following does not result directly in left heart failure?
- A. Myocardial infarction
 - B. Hypertension
 - C. Valve disease
 - D. Pulmonary hypotension
 - E. Cardiomyopathy
33. Your patient reports that they frequently suffer from severe afternoon headaches, given this information you would consider screening them for Sleep Apnea.
- A) True
 - B) False
34. Critical limb ischemia is characterized by a number of symptoms, which of the following is not correct?
- A. High risk for arterial wounds
 - B. Nocturnal pain
 - C. Pain at rest
 - D. Relieved by cessation of activity
 - E. Relieved by elevation
35. Treatment for Peripheral Arterial Disease with claudication can consists of:
- A. Exercise training
 - B. Revascularization
 - C. Pharmacological therapy

- D. Education
- E. All of the above

36. Rheumatic Fever is a complication of untreated Strep throat or Scarlet Fever.

- A) True
- B) False

37. Which of the following statements are incorrect regarding a Patent Foramen Ovale?

- A. In utero the PFO allows the fetal blood to bypass the lungs
- B. Full closure normal occurs in the first few days after birth
- C. Failure to close results in an increased risk for clot formation and stroke
- D. In most cases a defect (failure to close) is small and asymptomatic

38. In the case of clinical suspicion based on symptoms and clinical findings, the Ankle Brachial Index should be used as the first-line noninvasive test for the screening of Peripheral Arterial Disease.

- A) True
- B) False

39. Undiagnosed atrial fibrillation is particularly worrisome due to the increased risk.

- A. Diabetes
- B. Hypertension
- C. Myocardial infarction
- D. Stroke

40. The most common cause of Diastolic Heart Failure is Systolic Heart Failure.

- A) True
- B) False

41. Which of the following best describes Paroxysmal Nocturnal Dyspnea?

- A. An attack of severe shortness of breath and coughing, that is common sequela of Cor Pulmonale that can be relieved in whole or in part by sitting up with the legs dependent.
- B. An attack of severe shortness of breath and coughing, that is common sequela of systolic heart failure that can be relieved in whole or in part by sitting up with the legs dependent.
- C. An attack of severe shortness of breath and coughing, that is common sequela of diastolic heart failure that can be relieved in whole or in part by sitting up with the legs dependent.

42. Which of the following facilitated cough techniques would be most useful in treating the client who has difficulties with taking in an adequate inspiration?

- A. Forced expiratory technique
- B. Huffing
- C. "k" sound
- D. Sniffing
- E. Splinting

43. In the acute care setting an Incentive Spirometer can be used to help treat atelectasis.
- A) True
 - B) False
44. The literature demonstrates a number of clear benefits that people with COPD can expect from a well-prescribed exercise program, except?
- A. Improved exercise capacity
 - B. Reduction in the perceived intensity of breathlessness
 - C. Reduction in hospitalizations
 - D. Improved survival
 - E. Reduction in the number of hospitalization days for a give stay
45. Which one of the following does not represent a sign or symptom of decreased strength/endurance of the muscles of respiration?
- A. Decreased chest expansion
 - B. Shortness of breath
 - C. Increased tidal volume
 - D. Decreased breath sounds
 - E. Uncoordinated breathing pattern
46. The cardiopulmonary treatment of Vibration is equally effective at decreasing localized atelectasis and retained secretions.
- A) True
 - B) False
47. Hemoptysis is considered a clinical feature of Bronchiectasis.
- A) True
 - B) False
48. Obesity, cigarette smoking and alcohol abuse are all factors that put the ventilated patient at risk for developing Adult Respiratory Distress Syndrome.
- A) True
 - B) False
49. All of the following are considered precautions for postural drainage positioning, except?
- A. Hemoptysis
 - B. Increased intracranial pressure
 - C. Large pleural effusions
 - D. Morbid obesity
 - E. Pulmonary edema
50. With auscultation, you note that there are tracheal breath sounds heard about 2 inches to the right of midline. On further examination, you find that the breath sounds for the entire right middle and lower lobes are absent and there is little if any

lateral coastal chest wall movement on the right. What is the most likely cause for these findings?

- A. Atelectasis
- B. Consolidation
- C. Pneumothorax
- D. Tension pneumothorax
- E. Secretion retention

51. During the initial phase of a lobar viral pneumonia a persistent productive cough is a typical patient complaint.

- A) True
- B) False

52. The increased work of breathing experienced by those with significant pulmonary disease may be observed by the clinician via;

- A. Increased accessory muscle use
- B. Intercostal retractions
- C. Nasal flaring
- D. Use of short word phrases
- E. All of the above

53. Which pulmonary function test has been adapted for simple home use to help prevent an asthma attack?

- A. Forced vital capacity
- B. Forced expiratory capacity in 1 second
- C. Functional residual capacity
- D. Maximum ventilatory volume
- E. Peak expiratory flow

54. Which of the conditions listed below best fit the following description? Repeated pulmonary infections and bronchial obstructions result in airway dilations. The chronic cough and copious foul-smelling expectoration are common clinical clues with this condition.

- A. Asthma
- B. Chronic bronchitis
- C. Bronchiectasis
- D. Emphysema
- E. Congestive Heart Failure

55. Which of the following is not an associated trigger for asthma?

- A. Cigarette smoke
- B. Emotional stress and/or excitement
- C. Humid environments
- D. Physical exertion
- E. Respiratory infections

56. Is it reasonable that patients with a metabolically compensated long-standing chronic obstructive disorder could experience an acute bout of hypoxia, develop Cor Pulmonale and die from respiratory failure?
- A) True
 - B) False
57. Cor Pulmonale is the enlargement of the right ventricle secondary to pulmonary hypertension.
- A) True
 - B) False
58. Cardiogenic pulmonary edema is typically associated with Right Heart Failure.
- A) True
 - B) False
59. While palpating the anterior chest wall just above where the diaphragm attaches, you ask your patient to speak, so you can assess tactile fremitus. You note that what you feel is absent tactile fremitus under your right hand versus the left. What is indicated by the absence of tactile fremitus that you are experiencing?
- A. The area is consolidated
 - B. The area is atelectatic
 - C. The area has a pneumothorax
60. Which of the following pulmonary diseases are not typically associated with bronchiectasis?
- A. Cystic fibrosis
 - B. Measles
 - C. Tuberculosis
 - D. Acute Bronchitis
 - E. Solid body aspiration
61. The right lower lobe has a significant amount of accumulated secretions, with mediate percussion you would expect a _____ sound.
- A. Dull
 - B. Hyper-resonant
 - C. Hypo-resonant
 - D. Normal
 - E. Resonant
62. The left lower lobe is significantly collapsed, with mediate percussion you would expect a _____ sound.
- A. Dull
 - B. Hyper-resonant
 - C. Hypo-resonant
 - D. Normal
 - E. Resonant

63. The lingula has a large mucus plug with trapped air, with mediate percussion you would expect a _____ sound.
- A. Dull
 - B. Hyper-resonant
 - C. Hypo-resonant
 - D. Normal
 - E. Resonant
64. The right lower lobe is significantly collapsed, with auscultation you would expect the air entry to be _____ .
- A. Absent
 - B. Decreased
 - C. Loud
 - D. Increased
 - E. Soft
65. The left upper lobe has a significant amount of accumulated secretions, with auscultation you would expect the air entry to be _____.
- A. Absent
 - B. Decreased
 - C. Loud
 - D. Increased
 - E. Soft
66. The lingula has a large mucous plug with trapped air, with auscultation you would expect the air entry to be _____.
- A. Absent
 - B. Decreased
 - C. Loud
 - D. Increased
 - E. Soft
67. The right lower lobe is significantly collapsed, with egophony you would expect hear _____.
- A. "aaa"
 - B. "eee"
 - C. Loud "aaa"
 - D. Loud "eee"
 - E. No sound
68. The left upper lobe has a significant amount of accumulated secretions, with egophony you would expect to hear _____ .
- A. "aaa"
 - B. "eee"
 - C. Loud "aaa"
 - D. Loud "eee"

E. No sound

69. The right lower lobe is significantly collapsed, with auscultation what adventitious sounds might you hear _____.

- A. Course crackles
- B. Fine crackles
- C. Monophonic wheezes
- D. None
- E. Polyphonic wheezes

70. The left upper lobe has a significant amount of accumulated secretions, with auscultation what adventitious sounds might you hear _____.

- A. Course crackles
- B. Fine crackles
- C. Monophonic wheezes
- D. None
- E. Polyphonic wheezes

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