BOWEN UNIVERSITY, IWO

B. PHYSIOTHERAPY PROGRAMME

2021/2022 SESSION FIRST SEMESTER EXAMINATION

PST 417: Clinical Measurement and Instrumentation

Date: 12/05/2022 **Time Allowed: Two (2) hours**

PART ONE: Answer all questions

SECTION A

(1) (a) Define an outcome measure **(2 marks)**

(b) What are the uses of outcome measurement? **(4 marks)**

(c) Mr Akinwale, a stroke survivor came to your physiotherapy clinic, explain four factors you would consider in selecting the most suitable outcome measures for his management **(4 marks)**

(d)What are the stages involved in cross-cultural adaptation of self-report measures **(4 marks)**

(e) What are the classification of health measurements according to function and description? **(6 marks)**

(2) (a) Outline the procedures in goniometry **(5 marks)**

(b) What is the difference between muscle strength and muscle power? **(2 marks)**

(c) Highlight the limitations of the Oxford Scale (manual method of testing) **(5 marks)**

(d) Assuming the body density of Mr Kunle is $18kg/m^3$. Using the Brozek's formular, calculate Mr Kunle's percentage body fat. (**2 marks).**

(e) Mention the anatomical sites for skinfold measurement (**4 marks)**

(f) List four disease- or population-specific quality of life scales **(2 marks).**

SECTION B

1. The following are usually aimed at in outcome measurement except

(a) Impairments of body structure and function? (b) Activity limitations (c) Participation restrictions? (d) Quality of life (e) None of the above

2. Laboratory tests are (a)Subjective (b) Objective (c) Generic(d) Diagnostic (e) b and d

3. Which of the following is/are true about the techniques of using a goniometer
   (a) It is necessary that a double notation system is used in goniometry.
   (b) The neutral zero method (0 to 180- degree system) is the most widely used method.
   (c) The same goniometer should always be used to reduce the chances of instrumental error.
   (d) All of the above
   (e) a and c
   (f) b and c
4. Technically speaking, the Oxford Scale (manual method of testing) measures
   (a) Muscle strength (b) Muscle power (c) Muscle endurance (d) All of the above (e) All of the above
5. The Oxford Scale (manual method of testing) is also known as ……
   ……..
6. Which of the following untrue about **the Oxford Scale (manual method of testing)?**
   (a) 1=Flicker of movement
   (b) 2=Through full range actively with gravity counterbalanced
   (c) 3=Through full range actively against gravity
   (d) 4=Through full range actively against some resistance
   (e) 5=Through full range actively against strong resistance
   (f) All of the above
   (g) None of the above
7. Mention any quality of life scale developed by the World Health Organization
   ……
8. What is the most assessed anthropometric measure?.....……

9. What is the unit of body mass index?.....

10. How is body mass index interpreted?
    .....
    .....
    .....

11. Which is the most predictor of health and disease
    (a) BMI (b) Waist circumference (c) Hip circumference (d) Waist hip ratio

12. How is waist hip ratio interpreted in men and women?
    .....
    .....
    .....

PART TWO **Matric No: …….**

Section A: Answer all questions in the answer booklet provided

1 a. Explain the following with a suitable example
   i. Confounding variable (2.5 marks)
   ii. Qualitative variable (2.5 marks)
   ii. Dependent variable (2.5 marks)
   b. Write short notes on the following
   i. Test-retest reliability (2.5 marks)
   ii. Criterion related validity(2.5 marks)
   iii. Utility of an instrument (2.5 marks)
   c. Describe the scales of measurement (10 marks)

2. a. You have been invited to manage a 7 month old child who sustained flame burn injury to the upper chest
   i. Describe how you would assess pain in this patient? (5 marks)
   ii. Mention two pain rating scales that can aid your assessment (2 mark)

3. a. Describe Spirometry under the following headings description, procedure, indications and contraindication (10 marks)
   b. Briefly explain why there is an increase in pulse pressure during exercise (3 marks)

Section B: Answer all Questions in the question paper
Choose the correct option

1. The following describes the affective domain of pain except
   a. Depression b. location c. Anxiety d. Mood state

2. Pain is a _____ Variable
   a. Quantitative b. Dichotomous c. Continuous d. Qualitative

3. The following are pain rating scales used specifically for paediatric patients except:
   a. behavioural pain rating scale b. premature pain profile c. neonatal facial coding system d. FLACC

4. Factors that affect choice of pain rating scale include the following except:
   a. ease of administration b. age of the patient c. gender of the patient d. Administration time

5. _____ represents the force generated by the heart each time it contracts
   a. mean arterial pressure b. pulse pressure c. systolic blood pressure d. diastolic blood pressure

6. A group of physiotherapist has developed a new questionnaire to assess quality of life of patient. The reliability of the instrument will be best established using
   a. test retest reliability b. intrarater reliability c. inter reliability d. internal consistency

7. A physiotherapist developing a new instrument sent it to other physiotherapist to determine if the instrument samples the relevant domains of the phenomemon being studied. He is trying to ensure that the instrument has _____
   a. criterion –related validity b. face validity c. content validity d. construct validity.

Answer True or False

8. Functional residual capacity can be measured by spirometry_____

9. Inter-rater reliability are applicable to self-report tools_____

10. A decrease in residual volume may be indicative of an obstructive disease_____

11. Functional residual capacity is the volume of air remaining in the lungs after a normal inspiration _____

12. Functional residual capacity is decreased with COPD _____

13. Total lung capacity is the volume of air in the lungs after a maximum inspiration ____

14. A Tiffeneau-Pinelli index of 0.6 might be indicative of COPD _____

15. An increase in expiratory reserve volume may be indicative of a restrictive condition__

16. Ejection fraction is measured by electrocardiogram_____

17. Left ventricular ejection fraction measures efficiency of pumping into pulmonary circulation_____

18. Normal peak expiratory flow rate is age and height dependent_____

19. A cardiac index value of 2.4 L/min/m^2 may indicate cardiogenic shock _____

Fill in the gap(s) with the appropriate words

20. Forced vital capacity is often reduced in COPD because of _____

21. Visual analogue scale measures pain on _____scale

22. The volume of air remaining in the lungs after a maximum exhalation is the _____

Stroke volume is determined by

23. _____

24. _____and

25. _____

Given the parameters below answer questions 26 - 30

Tidal volume – 500ml; Expiratory reserve volume - 1.24 litres; Total lung Capacity – 6.0 litres

Functional residual capacity – 2.55 litres; Forced Vital capacity – 2.5 litres

Arterial blood pressure – 124/72mmHg

Calculate

26. The residual volume_____

27. The maximum volume of air inhaled after normal expiration_____

28. The maximum volume of air exhaled from the point of maximum inspiration_____

29. The Tiffeneau-Pinelli index____

30. The pulse pressure is low **TRUE/FALSE**