University of Fort Hare

Together in Excellence

HUS 214

DEGREE EXAMINATIONS

DATE: JUNE 2023

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TIME: 3hrs

MARKS: 100

MODULE: HUS 214

THIS PAPER CONSISTS OF 8 PAGES INCLUDING COVER PAGE

INTERNAL EXAMINER

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INSTRUCTIONS:

ANSWER ALL QUESTIONS

QUESTION 1

MULTIPLE CHOICE-CHOOSE ONE CORRECT ANSWER. [1x 10 =10]

1. **Only _____ report doing physical activity specifically designed to strengthen muscle at least. (1)**

   twice a week.

   a) 5%

   b) 99%

   c) 20%

   d) 25%

2. **It is the exchange of oxygen and carbon dioxide between the lungs and the blood. (1)**

   a) Capillary diffusion

   b) Transportation

   c) Pulmonary diffusion

   d) Inspiration

3. **Clinical exercise physiology is a subspeciality of Exercise Physiology that focuses on the relationship of:(1)**

   a) Disease

   b) Exercise and Chronic disease

   c) Athletes

   d) Sport Science

4. **Exercising 3-5 sessions per week is an example of: (1)**

   a) Frequency

   b) Duration

   c) Exercise

   d) Physical activity

5. **_____ is involved in low-intensity exercise and stretching: (1)**

a) Specific load

b) Progressive load

c) Warming up and cooling down

d) Intentional exercise

6. **It is the most powerful of and the largest ventricle, with exercise training the size of it increases.**

a) Left Ventricle

b) Right Ventricle

c) Circle chamber

d) Triangular chamber

7. **The proportion of blood pumped out of the ventricles with each beat. (1)**

a) Ejection fraction

b) Blood pump

c) Heart Jump

d) Cardiac cycle

8. **The highest pressure within the vascular system generated during cardiac contraction. (1)**

a) The pressure of the lungs

b) Diastolic blood pressure

c) Systolic blood pressure

d) High blood pressure

9. **Receptors that sense changes in muscle length and tension. (1)**

a) Mechanoreceptors

b) Electric receptors

c) Chemoreceplors

d) Baroreceptors

10. **The stretch receptors in the aortic arch and carotid arteries are sensitive to changes in blood pressure. (1)**

a) Baroreceptors

b) Mechanical receptors

c) Chemoreceptors

d) Aortic receptors

QUESTION 2 [15]

Match the following statement- in column A with the correct answer in column B. E.g., 2.1 A.

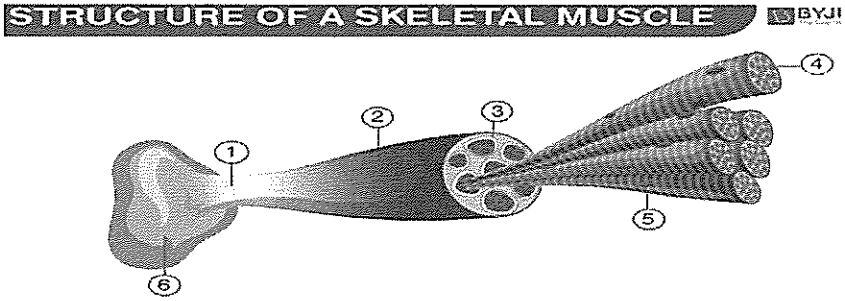
Column A	**Column B**
2.1 Movement of air into and out of the lungs.	A. Vital capacity
2.2 The exchange of oxygen and carbon dioxide between the capillary blood and the metabolically active tissue.	B. Alveoli
2.3 Pressure within the lung is usually greater than intrathoracic pressure causing the lungs to remain slightly inflated after expiration.	C. Pulmonary ventilation
2.4 A breathing technique where the air is trapped in the lungs against a closed epiglottis	D. Warming up and cooling down

and intra- abdominal and intrathoracic pressure are increased.	
2.5 Where the lungs and the blood exchange oxygen and carbon dioxide during the process of breathing in and breathing out.	E. Capillary diffusion
2.6 Doing an aerobic activity for 20- 30 minutes.	F. Weight and height
2.7 Involves low intensity exercise and stretching.	G. Spirometer
2.8 BMI calculations	H. Intrapulmonary pressure
2.9 A breathing technique where air is trapped in the lungs against a closed glottis, and intra-abdominal and intrathoracic pressure are increased.	I. Dyspnea
2.10 The maximum amount of air a person can expel from the lungs after a maximum inhalation.	J. Total lung capacity
2.11 The amount of air that moves in and out of the lungs with each respiratory cycle.	K. Stethoscope
2.12 Is the volume of air in the lungs upon the maximum effort of inspiration. n	L. Specificity
2.13 A test to correctly identify an individual who do not have the disease in question.	M. Valsalva maneuver

2.14 A medical device that measures the volume of air inspired and expired by the lungs.	N. Duration
2.15 A medical instrument for listening to the action of someone's heart or breathing typically has a small disc-shaped resonator that is placed against the chest and two tubes connected to earpiece.	O. Tidal volume
2.16 Is achieved when the kilocalories consumed are equal to the kilocalories expended	T. Brown adipose tissue
2.17 It is determined by the basal metabolism, the thermic effect of food, the effect of exercise or physical activity.	R. Direct calorimetry
2.18 It measures the energy expenditure by assessing body heat loss with a metabolic chamber	P. Energy balance
2.19 It is found in the bone marrow, heart, lungs, liver, spleen, kidneys, muscles and central nervous system.	Q. Energy expenditure
2.20 Is another type of fat tissue that Is made up of specialized fat cells.	S. Essential fat

QUESTION3

3.1 Label the structure below and its functions[2x6=12]



3.2 Name the four (4) brain major region and their functions (4x2=8)

3.3 Compare the three types of muscle contractions in a table format. Explain the types of muscle contraction. (3)

3.4 Briefly explain what pulmonary diffusion is in your own words. (2)

3.5 Provide a detailed discussion on the effect of the sympathetic nervous system (10)

3.6 Name and discuss the three types of muscles. (3)

3.7 Describe a cardiac cycle by providing a definition thereof and referring to the various contractions. (3)

3.8 Identify the receptors that modify blood pressure control through the cardiovascular control centers. (3)

3.9 Identify the health risks associated with being underweight. (8)

3.10. Identify the health risks associated with being overweight. (8)

QUESTION 4 [10] State whether the following statements are true/ false.

4.1 Warm up is composed of cardiovascular activity taking 30 to 40 minutes. (1)

4.2 Fitness assessment is meant for providing data that are helpful in the development of exercise prescriptions to address health related fitness which are speed, reaction, and balance. (1)

4.3 Studies of high intensity interval training (HIIT) and sprint interval training (SIT) demonstrate improvements in CRF cardiometabolic biomarkers and other health fitness -related physiological variables when including repeated alternating short (< 44-240) seconds bouts of vigorous to near maximal intensity exercise followed by equal or longer bouts (60-360) seconds of light to moderate intensity aerobic exercise. (1)

4.4 Physical fitness assessment is meant to educating participants about their present health-related standards, and age – and gender matched norms. (1)

4.5 For weight management, shorter durations of exercise (≥ 30-50 min. d-1 may be needed, especially in individuals who spend large amounts of time in sedentary behaviors. (1)

4.6 Hydration result from CR endurance test might influence body composition values if measured by bioelectrical impedance analysis. (1)

4.7 During the initial phase of exercise training applying the principal of "Start Slow and Go Slow" is prudent to reduce risks of adverse cardiovascular events and musculoskeletal injury as well to enhance adoption and adherence to exercise. (1)

4.8 American College of Sports of Medicine says "Schools should decrease time spent teaching skills used in team groups. (1)

4.9 American Heart Association stated that "Schools should teach the benefits of exercise and the development and maintenance of exercise conditioning throughout life". (1)

4.10 Gynoid obesity, which is characterized by more than fat in the trunk (abdominal fat), provides an increase risk of hypertension, metabolic syndrome, type 2 diabetes. (1)

TOTAL MARKS [100]