



University of Fort Hare

Together in Excellence

DEGREE AND DIPLOMA EXAMINATIONS: SUPPLEMENTARY EXAM: NOV 2025

<u>Faculty</u>	:	Faculty of Health Sciences
<u>Department</u>	:	Department of Human Movement Science
<u>QUALIFICATION</u>	:	BACHELOR OF HEALTH SCIENCES IN HUMAN MOVEMENT SCIENCE
<u>SUBJECT</u>	:	CLINICAL PHYSIOLOGY IN WORK ENVIRONMENT
<u>SUBJECT CODE</u>	:	HUS 327
<u>EXAMINER/S</u>	:	S NQWENISO
<u>MODERATOR</u>	:	D KWONG
<u>DURATION</u>	:	3 HOURS
<u>MARKS</u>	:	100
<u>ASSESSMENT WEIGHTING</u>	:	50%

QUESTION 1

After six weeks of participating in a structured workplace exercise programme, an employee's resting heart rate (RHR) decreases from 84 beats per minute to 68 beats per minute. Explain the physiological adaptations that account for this change and provide reasons why this change in RHR is important for occupational health. (8)

QUESTION 2

Sipho, a data analyst, presents with a fasting blood glucose of 110 mg/dL, waist circumference of 100 cm, BMI of 29 kg/m², blood pressure of 135/88 mmHg, and a low HDL cholesterol level of 38 mg/dL. [12]

- 2.1 Based on the given values, assess whether Sipho meets the criteria for metabolic syndrome. (4)
- 2.2 Explain the health implications of metabolic syndrome for working adults. (4)
- 2.3 Recommend three workplace health-promotion strategies that could reduce long-term risk. (3)

QUESTION 3

Discuss any four (4) field tests used to assess cardiovascular fitness. Focus on the target population, suitability and variables measured. (20)

QUESTION 4

Zozi, an untrained 20-year-old, and Lerato, a trained endurance runner, both run at 60% of their VO₂ max. [16]

- 4.1 Estimate Zozi's maximum heart rate using the age-predicted formula (3)
- 4.2 Compare their steady-state heart rates at this workload. (4)
- 4.3 Who is likely to have a higher stroke volume? Why? (4)
- 4.4 If both experience plasma volume loss during prolonged exercise, what effect could this have on performance? (5)

QUESTION 5

Many South African rural communities use traditional foods (e.g., sorghum, legumes, wild vegetables) and herbal teas (e.g., rooibos, moringa), as well as regular walking as part of daily life. In contrast, urban populations often follow more Westernised diets and lifestyles. Critically discuss how indigenous knowledge systems (IKS) can be integrated with Western dietary and physical activity guidelines to prevent cardiovascular and metabolic disorders. (8)

QUESTION 6

Explain the importance of office Human Factors and Ergonomics (HFE) for individuals in the modern workplace. Include in your answer any six (6) benefits of good office ergonomics as well as the health risks associated with sedentary behavior for individuals in the workplace. (15)

QUESTION 7

7.1 A 35-year-old woman presents with fatigue, pale skin, and shortness of breath on exertion. Blood tests show low hemoglobin levels and evidence of gastrointestinal bleeding due to a gastric ulcer. Discuss the type of anemia most likely affecting this patient, including the underlying cause, clinical features, and possible treatment approaches. (10)

7.2 A child is brought to the hospital with frequent nosebleeds, prolonged bleeding after minor cuts, and unexplained bruising. Family history reveals similar symptoms in the father. Identify the likely disorder, describe the underlying mechanism, and outline treatment options. (11)

TOTAL=100



University of Fort Hare
Together in Excellence



University of Fort Hare
Together in Excellence