UNIVERSITY OF JOHANNESBURG

PROGRAM:	**NURSING**
SUBJECT:	**PHYSIOLOGY 1**
CODE :	**HPH 1A10**
DATE :	**SUPPLEMENTARY – 29 JULY 2017**
TIME :	**15:00**
DURATION:	**90 MINUTES**
WEIGHT :	**50:50**
TOTAL MARKS:	**50**

EXAMINERS	**: DR S EAGLETON**
MODERATOR	**: MRS P DE LANGE-JACOBS**
NUMBER OF PAGES	**: 4 PAGES**

INSTRUCTIONS:	**YOU MAY KEEP THE QUESTION PAPER.**
REQUIREMENTS:	**1 x EXAMINATION SCRIPT**

Answer this section in the answer book provided. Number the questions exactly as they are number on the question paper. **Keep subsections of questions together**.

QUESTION 1

1.1 Use a physiological example to describe the steps of negative feedback. (6)

1.2 **Match** the terms pertaining to functional characteristics of organisms in the '**Key Choices'** with the appropriate descriptions. Write down the question number and key choice in your answer book.
8 x ½ = (4)

Key choices

Digestion	Metabolism
Excretion	Movement
Growth	Responsiveness
Maintenance of boundaries	Reproduction

1.2.1 Provides new cells for growth and repair
1.2.2 Occurs when constructive activities occur at a faster rate than destructive activities
1.2.3 The tuna sandwich you have just eaten is broken down to its chemical building blocks
1.2.4 Elimination of carbon dioxide by the lungs and elimination of nitrogenous wastes by the kidneys
1.2.5 Ability to react to stimuli; a major role of the nervous system
1.2.6 Walking, throwing a ball, riding a bicycle
1.2.7 All chemical reactions occurring in the body
1.2.8 At the cellular level - membranes; for the whole organism - the skin

1.3 Explain why phospholipids form a bilayer around a cell. (2)

1.4 For each of the following statements state whether the statement is **true** or **false**. Write the question number and your choice in the answer book. 6 x ½ = (3)

1.4.1 Steroids are the major form in which body fat is store.

1.4.2 Nonpolar molecules are generally soluble in water.

1.4.3 The universal energy currency of living cells is RNA.

1.4.4 The secondary structure of protein is reinforced by hydrogen bonds.

1.4.5 The building blocks of lipids (fats) are fatty acids and glycerol.

1.4.6 Peptide bonds are ionic bonds which bind amino acids into polypeptide strings forming proteins.

[15]

QUESTION 2

2.1 Name four membranous organelles (½) and give one function for each one (1). (6)

2.2 Describe the processes involved in protein synthesis. 8 x ½ = (4)

[10]

QUESTION 3

3.1 **Describe** the process of keratinization of the epidermis. (5)

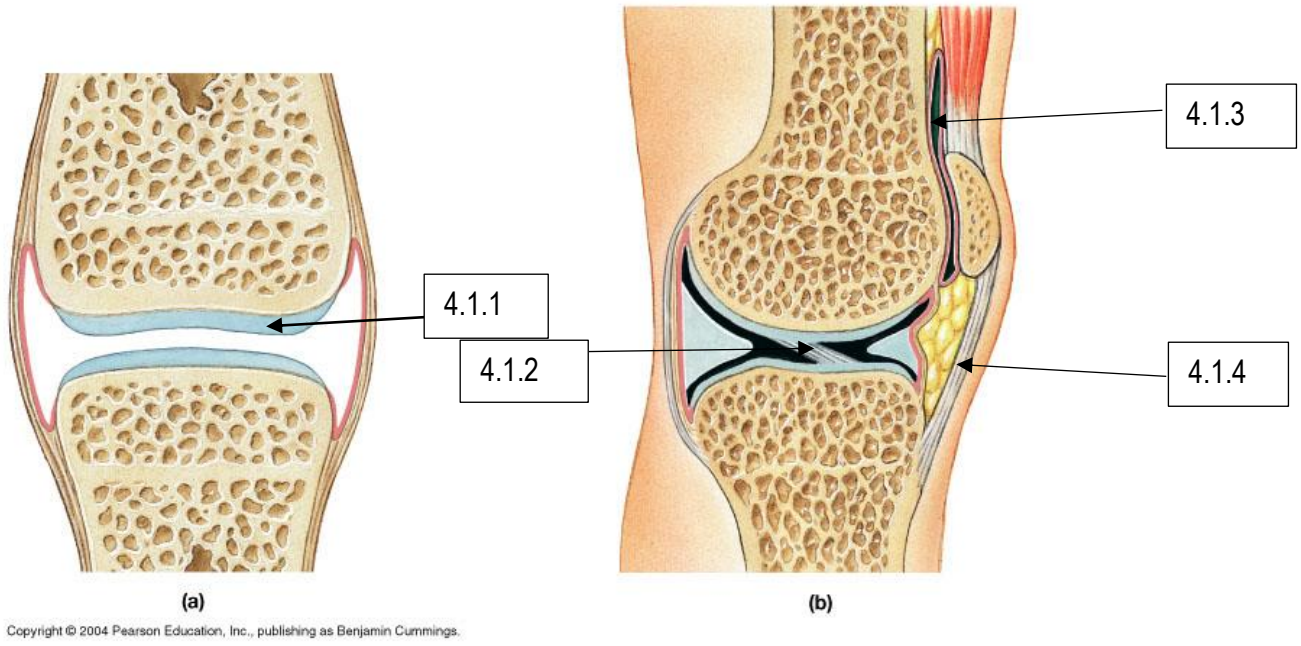
3.2 Explain the following functions of the skin:

3.2.1 Its protective function. (2)
3.2.2 Its role in thermoregulation. (3)

[10]

QUESTION 4

4.1 Identify the numbered structures (½) and give the function of the structure (1). (6)



4.2 Five descriptions of bone structure are provided. Identify the structure by choosing the appropriate term from the **KEY CHOICES.** 5 x ½ = (2½)

KEY CHOICES

Haversian canal	Endosteum	Trabeculae
Volkmann's canal	Perichondrium	Lacunae
Lamellae	Canaliculi	
Periosteum	Matrix	

4.2.1 Concentric layers of calcified matrix
4.2.2 Site of osteocytes
4.2.3 Longitudinal canal, carrying blood vessels and nerves
4.2.4 Non-living, structural part of bone
4.2.5 Minute canals, connecting lacunae

4.3 Using the **KEY CHOICES**, characterize the following statements. 7 x ½ = (3½)

KEY CHOICES

Diaphysis	Yellow marrow	Articular cartilage
Epiphysis	Red marrow	Hyaline cartilage
Metaphysis	Epiphyseal line	
Epiphyseal plate	Synovial membrane	

4.3.1 Site of spongy bone in the adult
4.3.2 Site of compact bone in the adult
4.3.3 Site of haematopoiesis in the adult
4.3.4 Scientific name for bone shaft
4.3.5 Site of fat storage in the adult
4.3.6 Site of longitudinal growth in a child
4.3.7 Composed of hyaline cartilage until the end of adolescence

4.4 Describe the response of the body to restore homeostasis if the blood calcium levels are too high.(3)

[15]

TOTAL = 50