

## APPLY KNOWLEDGE OF BIOCHEMISTRY

**UNIT CODE:** 0512 551 07A

**TVET CDACC UNIT CODE:** HE/OS/AHP/CC/03/6/MA

### UNIT DESCRIPTION

This unit specifies the competencies required by an animal health technologist to apply knowledge of biochemistry. It involves applying the knowledge of macromolecules, enzymes in managing animal health, molecular genetics, biomolecule metabolism in animal health and knowledge of biochemistry in ruminant nutrition.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the <b>key outcomes</b> , which make up <b>workplace function</b> .	These are <b>assessable</b> statements, which specify the required level of performance for each of the elements. <b><i>Bold and italicized terms are elaborated in the Range</i></b>
1. Apply knowledge of macro-molecules in animal health	1.1 Carbohydrates knowledge is applied as per work requirement 1.2 Proteins knowledge is applied as per work requirement 1.3 Vitamins knowledge is applied as per work requirement 1.4 Lipids knowledge is applied as per work requirement
2. Apply knowledge of enzymes in managing animal health	2.1 <b><i>Basic concepts of enzymes</i></b> are applied as per work requirement 2.2 Catalytic reactions are managed as per work requirement 2.3 Enzymes metabolism knowledge is applied as per work procedure
3. Apply knowledge of molecular genetics	3.1 Principles of molecular genetics are applied as per work procedure 3.2 Nucleic acid knowledge is applied as per work requirement 3.3 Nucleic acid metabolism knowledge is applied as per work requirement

4. Apply knowledge of the biomolecule metabolism in animal health	<p>4.1 <b>Biomolecule</b> metabolism knowledge is applied as per work requirement</p> <p>4.2 Metabolic pathways knowledge is applied as per work requirement</p> <p>4.3 Effects of biomolecule metabolism on animal health are managed as per work procedure</p>
5. Apply knowledge of biochemistry in ruminant nutrition	<p>5.1 Functions of the rumen knowledge is applied as per work requirement</p> <p>5.2 Knowledge of physiology of digestion in the rumen is applied as per work requirement</p> <p>5.3 <b>Volatile fatty acids</b> knowledge is applied as per work requirement</p>

#### **RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

<b>Variables</b>	<b>Range</b> <b>May include but is not limited to:</b>
1. Types of macromolecules include but not limited to:	<ul style="list-style-type: none"> <li>● Carbohydrates</li> <li>● Proteins</li> <li>● Vitamins</li> <li>● Minerals</li> <li>● Lipids</li> </ul>
2. Basic concepts of enzymes include but not limited to:	<ul style="list-style-type: none"> <li>● Isoenzymes</li> <li>● Holoenzymes</li> <li>● Coenzymes</li> <li>● Apoenzymes</li> </ul>

3. Types of biomolecules include but not limited to:	<ul style="list-style-type: none"><li>● Carbohydrates</li><li>● Proteins</li><li>● Vitamins</li><li>● Minerals</li><li>● Lipids</li></ul>
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## **REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

### **Required Skills**

The individual needs to demonstrate the following skills:

- Organizing skills
- Analytical skills
- Negotiation skills
- Interpersonal skills
- Communication skills
- Evaluation skills
- Problem-solving
- Critical thinking

### **Required Knowledge**

The individual needs to demonstrate knowledge of:

- The basic structure of a living cell and its organization
- The structural elements of carbohydrates, proteins, lipids and their interactions with other small molecules
- The nature of enzymes
- The process of enzyme catalysis
- Biochemical reactions which micro and macromolecules undergo to maintain homeostasis, growth and maturation

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Applied carbohydrates knowledge as per work requirement 1.2 Applied proteins knowledge as per work requirement 1.3 Applied vitamins knowledge as per work requirement 1.4 Applied lipids knowledge as per work requirement 1.5 Applied basic concepts of enzymes as per work requirement 1.6 Managed catalytic reactions as per work requirement 1.7 Applied enzymes metabolism knowledge as per work procedure 1.8 Applied principles of molecular genetics as per work procedure 1.9 Applied nucleic acid knowledge as per work requirement 1.10 Applied nucleic acid metabolism knowledge as per work requirement 1.11 Applied biomolecule metabolism knowledge as per work requirement 1.12 Applied metabolic pathways knowledge as per work requirement 1.13 Managed effects of biomolecule metabolism on animal health as per work procedure
2. Resource Implications	The following resources must be provided: 2.1 Appropriately simulated environment where assessment can take place 2.2 Access to relevant work environment 2.3 Resources relevant to the proposed activities or tasks
3. Methods of Assessment	Competency may be assessed through: 3.1 Written tests 3.2 Third party reports 3.3 Oral questioning 3.4 Interview 3.5 Observation

4 Context of Assessment	Competency may be assessed in a: Workplace or simulated workplace
5 Guidance information for assessment	Holistic assessment with related units in the sector