



2<sup>nd</sup> SEM. 2004/2005

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## UNIVERSITY OF SWAZILAND

### SUPPLEMENTARY EXAMINATION

**PROGRAMME:** DIPLOMA IN AGRICULTURE AND DIPLOMA  
IN AGRICULTURE EDUCATION YEAR I  
  
REMEDIAL AGRICULTURE AND REMEDIAL  
AGRICULTURE EDUCATION

**COURSE CODE:** APH 103

**TITLE OF PAPER:** BIOCHEMISTRY

**TIME ALLOWED:** TWO (2) HOURS

**INSTRUCTIONS:** ANSWER ANY 4 QUESTIONS.

**DO NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE  
CHIEF INVIGILATOR.**

**QUESTION 1**

- a). Describe the major differences between RNA and DNA. (10 Marks)
- b). Describe the processes of transcription and translation. (15 marks)

**QUESTION 2**

- a). The following is a shorthand notation for eicosatetraenoic acid:  
**20: 4  $\Delta^{5,8,11,14}$** . Interpret the notation and give the common name for this fatty acid. (5 Marks)
- b). Using structures to illustrate your answer, where appropriate, describe the main differences between the following:
- i. Triacylglycerols and phospholipids
  - ii. Nucleoside bisphosphate and nucleoside diphosphate
  - iii. Saturated and unsaturated fatty acids
  - iv. Maltose and cellobiose (20 Marks)

**QUESTION 3**

- a). Distinguish between nucleoside diphosphate and nucleoside bisphosphate. (5 Marks)
- b). Explain the importance of RNA and DNA. (10 Marks)
- c). Describe and illustrate the type of bonds found in:
- i. Water
  - ii. Polypeptides and proteins (10 Marks)

**QUESTION 4**

- a). Discuss the effect of the following factors on enzyme activity:
- i. Temperature
  - ii. pH
  - iii. Substrate concentration (15 Marks)
- b). Write short notes on:
- i. Triacylglycerides
  - ii. Polysaccharides (10 Marks)

**QUESTION 5**

- a). With the aid of structures, distinguish between:
- i. Nucleoside and nucleotide
  - ii. Ribose and deoxyribose (10 Marks)
- b). Write notes on enzyme inhibition. (15 marks)