



The Open University of Sri Lanka
 Faculty of Engineering Technology
 Final Examination- 2009/10
 AEI3234 Agricultural Biology I

Date : 05-04-2010
 Time : 1400-1700 hours

SECTION II

- (1) (a) What is meant by a "simple tissue" and a "complex tissue"?
- (b) With the aid of fully labelled diagrams explain the structure and functions of the followings.
- i) Companion cell and sieve element
 - ii) Xylem tracheids
 - iii) Epidermis
 - iv) Xylem vessel
- (2) (a) Describe the leaf anatomy (internal structure) of C₄ plants with the aid of fully labelled diagram/s.
- (b) What is the significance of Crassulacean Acid Metabolism (CAM)?
- (c) Briefly explain the pathways of C₄ photosynthesis.
- (d) Briefly explain the role of light and water in photosynthesis.
- (3) (a) What is meant by "genotype" and "phenotype"?
- (b) Hibiscus can be either yellow or red. Plants of these hibiscus types were crossed as follows:
- | <u>Parents</u> | <u>Progeny</u> |
|----------------|-------------------|
| Red * Red | 61 Red |
| Red* Red | 47 Red, 16 Yellow |
| Red* Yellow | 58 Red |
| Yellow* Yellow | 64 Yellow |
| Red * Yellow | 33Red, 36 Yellow |
- i) Which phenotype is dominant?
 - ii) What are the genotypes of the parents and progeny in each cross.

- (4) (a) Write a short essay on "protein synthesis".
(b) What are the biological functions of protein?
(c) Calculate the total yield of ATP obtained from oxidation of a molecular of glucose aerobic respiration.
- (5) Write short notes on any three (03) of the following.
(a) Role of microorganisms in Carbon Cycle and Nitrogen Cycle.
(b) Energy pyramids
(c) Genetic drift
(d) Dark reaction of photosynthesis.