



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018**

COURSE NAME : PLANT PHYSIOLOGY
COURSE CODE : BWJ 32003
PROGRAMME CODE : BWW
EXAMINATION DATE : JUNE / JULY 2018
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** (a) (i) List **THREE (3)** abiotic factors which affect the rate of transpiration. (3 marks)
- (ii) Explain how water is carried by the transpiration stream. (7 marks)
- (b) (i) Name the hormone that delays leaf senescence. (2 marks)
- (ii) Analyze **FOUR (4)** conditions needed for seed germination. (8 marks)
- Q2** (a) Discuss the effect of temperature, light intensity and CO₂ concentration on the rate of photosynthesis. (6 marks)
- (b) Outline the formation of carbohydrate molecules during photosynthesis. (6 marks)
- (c) Compare (in a table) the light-independent and light-dependent reactions of photosynthesis. (8 marks)
- Q3** (a) Identify **THREE (3)** chemically distinct groups of plant secondary metabolites. (6 marks)
- (b) Determine **THREE (3)** ecological functions of plant secondary metabolites. (6 marks)
- (c) Differentiate primary and secondary metabolisms in plants. (8 marks)
- Q4** (a) (i) Define abiotic stress. (2 marks)
- (ii) Determine **FOUR (4)** abiotic factors which cause stress to plants. (8 marks)
- (iii) Analyze how plant responds to one of the factors in **Q4(a)(ii)**. (4 marks)
- (b) Distinguish acclimation from adaptation to abiotic stress. (6 marks)

- Q5** (a) The major pests of oil palm in Malaysia are rats, bagworms, nettle caterpillars, rhinoceros beetle, bunch moth and termite whilst the most important disease is Ganoderma basal stem rot and, to a lesser extent, Marasmius bunch rot. Insecticides will remain the main weapon against insect pests, but integrated control involving regular monitoring, good agronomic practices, conservation, supplementation and utilisation of natural control agent, and the judicious use of chemicals, will become increasingly more important. Chemicals with broad-spectrum of activity, long and persistent residues, and high mammalian toxicity will continue to be replaced by safer and more target specific products that are also safer to the environment.

Propose **TWO (2)** solutions for pest and disease control as part of Integrated Pest Management (IPM).

(8 marks)

- (b) Categorize the main causal agent of plant disease into **TWO (2)** categories and give **TWO (2)** examples for each category.

(12 marks)

- END OF QUESTIONS -

TERBUKA