



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015**

COURSE NAME : PLANT TAXONOMY AND DIVERSITY
COURSE CODE : BWJ 10403
PROGRAMME : 1 BWJ
EXAMINATION DATE : JUNE 2015 / JULY 2015
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

- Q1** (a) List down FIVE (5) limitations of artificial classification. (5 marks)
- (b) Explain how natural classification works. (5 marks)
- (c) Show how:
- (i) Antheridium has contributed to the successful evolution of land plants.
 - (ii) Cutin and cuticle made adaptation of land plants successful. (10 marks)
- Q2** (a) Describe or define the following:
- (i) Pome
 - (ii) Ovule
 - (iii) Samara
 - (iv) Corolla
 - (v) Tracheids (10 marks)
- (b) Illustrate the differences between monocot and dicot according to the following:
- (i) Flower
 - (ii) Cotyledon
 - (iii) Root system
 - (iv) Leaf venation
 - (v) Vascular bundle (10 marks)
- Q3** Distinguish the morphological characters of the following families and give one species for each.
- (a) Arecaceae
 - (b) Annonaceae
 - (c) Euphorbiaceae
 - (d) Podocarpaceae
 - (e) Rhizophoraceae (20 marks)

- Q4** (a) What is herbarium voucher specimen and analyze its importance in plant taxonomy. (5 marks)
- (b) Ochnaceae consists of 30 genera and about 450 species worldwide. In Malaysia, it is represented by five genera and seven species. Given the information below, create a dichotomous key for the following taxa of Ochnaceae.
- (i) *Brackenridgea* – inflorescences of sessile cymes. Stamens 10, arranged in 1 whorl. Lamina with a few basal lateral ascending longitudinal veins that extend beyond at least two lateral veins above, apical ones conspicuously looping and joining consecutively. Lateral veins to 15 pairs, ascending then curving upwardly near margin. Trees or shrubs, stipules usually cauducous, when persistent never deeply divided into numerous long, hair-like bristles
 - (ii) *Euthermis* - lateral veins numerous, closely parallel, trees or shrubs, stipules usually cauducous, when persistent never deeply divided into numerous, long, hair-like bristles, petioles winged. Lamina without a clear intermarginal vein. Flowers bisexual or androecious; torus absent; stamens 5, anthers opening longitudinally. Fruit a 5-seeded berry
 - (iii) *Ochna* – trees, shrubs, stipules usually cauducous, when persistent never deeply divided into numerous long, hair-like bristles. Lamina with short lateral veins, ascending but never extending beyond the next lateral vein above, tips of lateral veins fading near the margin. Inflorescence thryses. Stamens numerous, arranged in 2 or more whorls. Lateral veins to 15 pairs, ascending then curving upwardly near margin
 - (iv) *Sauvagesia* - woody herbs, stipules persistent, deeply divided into numerous long, hair-like bristles
 - (v) *Campylospermum* - petioles not winged. Lateral veins numerous, closely parallel, lamina with 1-3 intramarginal veins. Flowers bisexual only; torus present; stamens 10, anthers opening by 2 apical pores. Fruit a collection of single-seeded drupelets. Trees or shrubs, stipules usually cauducous, when persistent never deeply divided into numerous, long, hair-like bristles (15 marks)
- Q5** (a) Differentiate introgression, hybridization and polyploidy. Elaborate your answer by explaining how do these phenomena occur. (15 marks)
- (b) What is meant by disjunct population and determine its importance in relation to plant taxonomy? (5 marks)

- END OF QUESTION -