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UNIVERSITI SAINS MALAYSIA

First Semester Examination  
Academic Session 2009/2010

November 2009

**BGT 311/4 – Plant Disease Management**  
***[Pengurusan Penyakit Tumbuhan]***

Duration: 3 hours  
*[Masa : 3 jam]*

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Please ensure that this examination paper contains FIVE printed pages before you begin the examination.

*[Sila pastikan bahawa kertas peperiksaan ini mengandungi LIMA muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]*

**Instructions:** Answer **FIVE** (5) out of **SIX** (6) questions, in English or Bahasa Malaysia. Each question carries 20 marks.

***[Arahan:*** Jawab **LIMA** (5) daripada **ENAM** (6) soalan yang diberikan dalam Bahasa Inggeris atau Bahasa Malaysia. Tiap-tiap soalan bernilai 20 markah.]

In the event of any discrepancies, the English version shall be used.

*[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan. versi Bahasa Inggeris hendaklah diguna pakai].*

1. Nowadays, the incidence of fungal resistance against fungicides has become a reality rather than a myth. Explain this phenomenon by using examples of incidences all over the world and those in Malaysia.

(20 marks)

2. What is disease forecasting and what does it takes to develop a more meaningful and practical disease forecasting system, especially in our current electronic era?

(20 marks)

3. What is crop rotation? Explain the strategies and fundamental theories underlying the management of diseases by crop rotation.

(20 marks)

4. Why are plants resistant to certain pathogens? Discuss the types of resistance and their characteristics.

(20 marks)

5. (a) How does plant disease management through quarantine is conducted in Malaysia.

(10 marks)

- (b) Provide a brief description on how to manage the following diseases:

[i] Damping-off.

[ii] Basal stem rot of oil palm.

(10 marks)

6. Write short notes on the following topics:

[a] Describe briefly the mechanisms by which antagonistic microorganisms affect the pathogen population in biocontrol of plant diseases.

(10 marks)

(b) Describe role of molecular techniques in plant disease diagnosis.

(10 marks)

1. Pada masa ini, kejadian kerintangan kulat terhadap fungisid telah menjadi suatu kenyataan, tidak lagi suatu mitos. Huraikan fenomena ini dengan menggunakan contoh-contoh kejadian yang berlaku di seluruh dunia dan juga di Malaysia.

(20 markah)

2. Apakah peramalan penyakit dan apakah yang diperlukan untuk mengembangkan suatu sistem peramalan penyakit yang lebih bererti dan praktikal, terutama dalam era elektronik kita sekarang?

(20 markah)

3. Apakah pergiliran tanaman? Huraikan strategi dan teori-teori asas yang menerangkan tentang pengurusan penyakit melalui kaedah pergiliran tanaman.

(20 markah)

4. Mengapakah tumbuhan rintang terhadap patogen tertentu? Bincangkan jenis-jenis kerintangan dan ciri-cirinya.

(20 markah)

5. [a] Bagaimana pengurusan penyakit melalui kuarantin dijalankan di Malaysia.

(10 markah)

- [b] Berikan penerangan ringkas bagaimana pengurusan penyakit berikut dilakukan.

[i] Redam.

[ii] Reput pangkal batang kelapa sawit.

(10 markah)

6. Tulis nota ringkas tentang topik berikut:

[a] Huraikan dengan ringkas mekanisma bagaimana mikroorganisma antagonis memberi kesan terhadap populasi patogen dalam kawalan biologi penyakit tumbuhan.

(10 markah)

[b] Huraikan peranan teknik molekul dalam mendiagnosis penyakit tumbuhan.

(10 markah)

