UNIVERSITI SAINS MALAYSIA

Peperiksaan Kursus Semasa Cuti Panjang
Sidang Akademik 2005/2006

Jun 2006

BBT 303E/3 – Plant Molecular Biology
[Biologi Molekul Tumbuhan]

Duration : 3 hours

[Masa: 3 jam]

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

Answer FIVE out of SIX questions, in English or Bahasa Malaysia.

Each question carries 20 marks.

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

*Jawab LIMA daripada ENAM soalan yang diberikan dalam Bahasa
Inggeris atau Bahasa Malaysia.*

Tiap-tiap soalan bernilai 20 markah.

2. The reassociation kinetics of eukaryotic DNA show three types of component and their properties.

	Fast	Intermediate	slow
Percent of genome	25	30	45
$Cot_{1/2}$ (mixture)	0.0013	1.9	630

Calculate the complexity and repetition frequency for each component.

(20 marks)

2. *Kinetik pesekutuan semula DNA eukariot menunjukkan tiga jenis komponen dan sifat mereka.*

	Cepat	*Sederhana*	*Perlahan*
Peratus genom	*25*	*30*	*45*
$Cot_{1/2}$ (campuran)	*0.0013*	*1.9*	*630*

Hitungkan kekompleksan dan frekuensi pengulangan setiap satu komponen.

(20 markah)

3. [a] Stringency is an important factor during washing of Southern and Northern blots.

    [i] Explain the term stringency.

    (4 marks)

    [ii] List and describe the three stringency condition.

    (6 marks)

    [b] Explain how the removal of a hair-pin region in an RNA molecule will result in mobility being inversely proportional to the log. of the molecular weight.

    (10 marks)

3. [a] Keketatan adalah suatu faktor penting semasa pembasuhan blot Southern dan Northern.

    [i] Terangkan keketatan.

    (4 markah)

    [ii] Senaraikan dan huraikan tiga keadaan keketatan.

    (6 markah)

    [b] Pembasmian kawasan pin-rambut molekul RNA akan menyebabkan kemobilan berkadar songsang kepada log. berat molekul. Terangkan.

    (10 markah)

4. Describe with the aid of a schematic diagram the process of non-cyclic photophosphorylation taking into consideration the relative redox potential value of each component.

(20 marks)

4. Huraikan dengan bantuan gambarajah skema proses fotofosforilasi bukan siklik dengan mengambilkira nilai relatif keupayaan redoks setiap komponen.

(20 markah)

5. Describe the processing (RNA spilicing) of type II, II and III introns.

(20 marks)

5. Huraikan pemprosesan (hiris-cantum RNA) intron jenis I, II dan III.

(20 markah)

6. Outline the functions of membrane in plants.

(20 marks)

6. Beri ringkasan fungsi membran dalam tumbuhan.

(20 markah)

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