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UNIVERSITI SAINS MALAYSIA

Peperiksaan Kursus Semasa Cuti Panjang  
Academic Session 2003/2004

April 2004

**ZGT 374E/3 - Remote Sensing**  
***[Penderiaan Jauh]***

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

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Please check that the examination paper consists of **THREE** pages of printed material before you begin the examination.

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

**Instruction:** Answer all **FOUR (4)** questions. Students are allowed to answer all questions in Bahasa Malaysia or in English.

**Arahan:** *Jawab kesemua **EMPAT** soalan. Pelajar dibenarkan menjawab semua soalan sama ada dalam Bahasa Malaysia atau Bahasa Inggeris.]*

1. (a) Films are described by their spectral sensitivity. Describe and give an example.  
 [(a) *Filem diperihalkan oleh kepekaan spektrumnya. Jelaskan dan berikan contoh.*]  
 (25/100)
- (b) Describe three basic steps in a typical supervised classification.  
 [(b) *Jelaskan tiga langkah asas bagi suatu pengelasan terselia yang tipikal.*]  
 (25/100)
- (c) Describe the basic operating principle of a SLAR system.  
 [(c) *Perihalkan prinsip operasi asas bagi sistem SLAR.*]  
 (25/100)
- (d) What is the difference between across-track and along track multispectral scanner?  
 [(d) *Apakah perbezaan di antara pengimbas multispektrum merentas trek dan di sepanjang trek.*]  
 (25/100)
2. (a) Describe the spectral reflectance of vegetation, soil and water.  
 [(a) *Jelaskan kepantulan spektrum bagi tumbuhan, tanah dan air.*]  
 (50/100)
- (b) Describe the energy interactions in the atmosphere that are related to remote sensing.  
 [(b) *Jelaskan saling tindakan tenaga dalam atmosfera yang berkaitan dengan penderiaan jauh.*]  
 (50/100)
3. Write short notes on the following topics:  
 [Tulis nota ringkas tentang tajuk-tajuk berikut:]
- (a) Passive and active remote sensing.  
 [(a) *Sistem penderiaan jauh aktif dan pasif.*]  
 (25/100)
- (b) Infrared photography.  
 [(b) *fotografi inframerah.*]  
 (25/100)

- (c) Contrast manipulation in image enhancement.  
[(c) *Manipulasi kontras dalam peningkatan imej.*] (25/100)
- (d) Fourier analysis in image processing.  
[(d) *Analisis Fourier dalam pemprosesan imej.*] (25/100)
4. Discuss the used of the remote sensing method in the development of Malaysia.  
[*Bincangkan kegunaan kaedah penderiaan jauh di dalam pembangunan Malaysia.*] (100/100)