Database Theory

(a) Describe the key features of the ODMG object model. [6 marks]

(b) Describe the key features of the semi-structured data model. [6 marks]

(c) Consider the following DTD.

```
<!ELEMENT class (student)*>  
<!ELEMENT student (name, college, course*, (phone|email))>  
<!ELEMENT name (#PCDATA)>  
<!ELEMENT college (#PCDATA)>  
<!ELEMENT course (title, year)>  
<!ELEMENT title (#PCDATA)>  
<!ELEMENT year (#PCDATA)>  
<!ELEMENT phone (#PCDATA)>  
<!ELEMENT email (#PCDATA)>  
```

(i) Detail how XML data satisfying such a DTD could be stored in a traditional (non-complex value) relational DBMS. Comment on the efficiency of your strategy. [5 marks]

(ii) Detail how XML data satisfying such a DTD could be stored in an ODMG-compliant DBMS. [3 marks]