Part 1 (10 marks): Semi Structured Data - Object Exchange Model

1. The emergence of XML as a standard for data representation on the Web is expected greatly to facilitate the publication of electronic data by providing a simple syntax for data that is
   - only human readable
   - both human and machine readable
   - only machine readable

2. Semi-structured data models are used for
   - data exchange among homogeneous data sources
   - data integration of heterogeneous data sources
   - data integration of homogeneous data sources
   - data exchange among heterogeneous data sources

3. Schema graphs are useful for
   - optimizing queries by reducing the number of data graphs
   - improving storage of data
   - browsing the data by types
   - browsing the data by size
   - optimizing queries by reducing the number of paths searched

4. A simulation is a relation $R$ between nodes if $(v,u)$ is in $R$ and $(v,y)$ labeled $l$ is in $D$ then
   - there exists $(u,x)$ labeled $l$ in $S$ such that $(u,x)$ is in $R$
   - there exists $(u,x)$ labeled $l$ in $S$ such that $(v,x)$ is in $R$
   - there exists $(u,x)$ labeled $l$ in $S$ such that $(y,x)$ is in $R$
   - there exists $(v,y)$ labelled $l$ in $S$ such that $(x,y)$ is in $R$

5. Data guide is a
   - concise and accurate summary of a schema graph
   - concise and accurate summary of a data graph
Part 2 (10 marks): Introducing XML

1. All documents need to be valid.
   - True
   - False

2. All documents need to be well formed.
   - True
   - False

3. All current schema languages are purely declarative.
   - True
   - False

4. Today's schema languages are capable of verifying extra-document constraints such as "Every citizenship element matches the citizenship field of a record in the student table of the university database."
   - True
   - False

5. Give five examples of applications that receive data from the parser
   - A web browser, such as Internet Explorer, that displays the document to a reader
   - A word processor, such as StarOffice Writer, that loads the XML document for editing
   - A database, such as Microsoft SQL Server, that stores the XML data in a new record
   - A drawing program, such as Adobe Illustrator, that interprets the XML as two-dimensional coordinates for the contents of a picture
   - A spreadsheet, such as Gnumeric, that parses the XML to find numbers and functions used in a calculation
   - A personal finance program, such as Microsoft Money, that sees the XML as a bank statement
   - A program that you yourself wrote in Java or C, that does exactly what you want it to do