

Problem	1	2	3	4	Total
Points:	20	12	10	20	62
Score:					

This homework assignment has 4 problems, for a total of 62 points.

1. (20 points) Of the following statements, identify all that hold about XML keys, integrity constraints, and other aspects of relating XML to databases:
 - A. In mapping XML to tables, sometimes you would create a table with no columns
 - B. In mapping XML to tables, sometimes you would be forced to create a table that has no primary or candidate key
 - C. Since XML documents may have arbitrarily many repetitions, any mapping of XML to tables without duplicates is impossible
 - D. Since document order of elements in XML documents is significant and the ordering of tuples in the relational model is not significant, mapping of XML documents to tables is possible only if we know that document order is not significant in the particular case at hand
 - E. This course advocates building a conceptual model (e.g., using UML) for the desired documents before creating XML Schema representation for them
 - F. A tuple-generating element is an element in an XML document schema that is mapped to a table in a relational schema
 - G. In general, when we map an XML schema to a relational schema using one of the simple tuple-generating element approaches, we might not be able to map an XML key to a relational key constraint in any of the resulting relations
 - H. A major practical motivation behind the interest in SQL/XML is the huge installed base on relational databases
 - I. SQL/XML provides mappings between SQL types (such as date) and XML Schema
 - J. If an SQL/XML query output any XML, what it outputs is a well-formed XML document
2. (12 points) Of the following statements, identify all that hold about e-business concepts.
 - A. Electronic business is a new direction for computer science because it introduces money into computer science
 - B. Integration as opposed to interoperability is the preferred way of organizing open systems
 - C. XML does not solve the problem of information system heterogeneity
 - D. Both electronic business and social networks place importance on interactions among autonomous parties
 - E. Dynamism is important to electronic business because the business partners of an enterprise can change
 - F. There can be technical reasons for autonomy and heterogeneity even when the sociopolitical reasons don't apply
3. (10 points) Of the following statements, identify all that hold about e-business
 - A. Messaging based on XML helps us engineer software systems that better address the challenges of heterogeneity than traditional, proprietary approaches
 - B. Market mechanisms for contracting tasks provide a basis for developing software systems that address the challenges of autonomy because market mechanisms support each prospective business partner independently deciding how much to bid for a particular contract

- C. Market mechanisms for contracting tasks assume that any *relevant* heterogeneity among the bidders with respect to task descriptions has been adequately addressed
 - D. The present state of affairs in IT where programming languages deal with objects, databases with tuples, and applications exchange documents provides the ideal way to realize IT systems
 - E. One thing we know for sure is that we don't have to contend with heterogeneity within the same enterprise
4. (20 points) Of the following statements, identify all that hold about architecture.
- A. According to Vernadat, most J2EE architecture components correspond to .NET components
 - B. Enterprise models ought to give primacy to the business processes of the enterprise being modeled
 - C. Enterprise models describe how a business works but need to be totally redone whenever systems and infrastructure technologies change
 - D. Formulating architectures based on the skills required for different components is a bad idea
 - E. Architecture frequently determines what products (commercial, open source, . . .) exist
 - F. Open architecture is specified in terms of the products that need to be put together
 - G. An enterprise model doesn't make sense for enterprises that are planning to use an external data center to host their storage and computation
 - H. IT governance includes the human organizational aspects of how IT systems are administered
 - I. Messaging middleware facilitates loose coupling in information systems
 - J. Messaging middleware is of two main types: queues and topics