Problem	1	2	3	4	5	Total
Points:	10	6	16	8	20	60
Score:						

This homework assignment has 5 problems, for a total of 60 points.

1. (10 points) Moved here from H2.
   A. A business service is characterized by the value it offers one or more stakeholders
   B. A business service is characterized by an underlying or associated financial exchange
   C. A business service offering is different from a goods offering in that a business service inherently involves coproduction
   D. A business service is intangible but goods are tangible
   E. Accounting and auditing are examples of business-level responsibilities that can be understood as cross-cutting concerns on par with logging at a technical level

2. (6 points) Of the following statements, identify all that hold about XML.
   A. XML is valuable for e-business because it provides the desired level of conceptual modeling needed in e-business
   B. XML has a natural match with messaging middleware but can be effectively used even without messaging middleware
   C. The XML Schema instance namespace offers some essential terms (elements or attributes) to be used within a schema-compliant XML document

3. (16 points) Of the following statements, identify all that hold about XML Schema.
   A. Specifying the schema of an XML document helps catch certain errors in an incoming document even before trying to use that document
   B. Using XML syntax for a language is most valuable from the tooling perspective, and not necessarily so for human readability
   C. XML InfoSet specifies that the attributes of an element are unordered
   D. XML InfoSet specifies that comments may occur *only* before the main element of an XML document
   E. XML Schema provides a way to specify minimum and maximum bounds on the number of values an attribute of an element can take
   F. Since attributes can only take string values, XML Schema doesn't allow types on attributes
   G. In XML, a text node under an element includes the largest possible contiguous block of text not interrupted by a subelement
   H. Attributes are a convenience but anything that attributes can represent we can represent using elements

4. (8 points) Of the following statements, identify all that hold about keys and other database-related concepts.
   A. The document-centric view was generally not promoted by Database Administrators (DBAs) in large enterprises because they preferred to give a central role to existing enterprise databases
   B. Although XML doesn't allow the keys on an element to refer to its parents, this is mainly based on implementation ease: there is no fundamental or logical reason why keys referring to parents could not be defined
   C. To define a keyref presupposes that a correponding key or unique is defined

D. Let K_1 be a key with one selector and three fields that applies on a context node. Let K_2 be another key on the same context node, with the same selector, and with exactly two of the three fields. Then given K_1, K_2 is redundant

5. (20 points) Of the following statements, identify all that hold about XML keys, integrity constraints, and other aspects of relating XML to databases:

   A. Common business documents such as real-life purchase orders and repair manuals are typically better treated in the document-centric view than the data-centric view

   B. In the document-centric view, we would generally find real-life documents that have no or few elements with mixed content

   C. The XML Root as defined in SQL/XML is identical to the root of the XML InfoSet

   D. XML supports creating NULL elements for each element type that we wish to define as nillable

   E. SQL/XML Publishing functions can be used in a SELECT query to output serialized representations of XML elements, possibly even including subelements and attributes

   F. What makes it difficult to represent an XML document as a set of tables is that every table has a key but not every XML document has a key

   G. Except for the introduction of XML Type as a data type, SQL/XML makes no substantial change to the traditional SQL DDL

   H. In a number of settings, SQL/XML treats char, varchar, and clob as if they were more or less interchangeable string-like data types

   I. SQL/XML SELECT queries output rows some of whose cell values may be XML elements

   J. When defining a table in SQL/XML, the XML Type must always be marked NOT NULL, since we should express a null value in the style of ⟨elem xsi:nil='true'/⟩