

1. (12 points) Of the following statements, identify all that hold about e-business concepts.
- A. Electronic business forces interactions across administrative domains
 - B. Electronic business requires closed information systems to ensure security
 - C. Optimistic handling is a possible approach for handling global constraints
 - D. Some examples of essential global information in a distributed system are important overall constraints
 - E. Integration yields a single homogeneous entity for the integrated subsystems
 - F. Accommodating dynamism is desirable because of the difficulty of maintaining configurations by hand

Solution: A, C, D, E, F

2. (20 points) Of the following statements, identify all that hold about architecture.
- A. In the best information architectures, the best interconnections are COTS (commercial off-the shelf) products
 - B. Protocols help improve productivity by enhancing reuse
 - C. In practical settings, IT architectures are studied along with the human organizations by which system components are maintained
 - D. An enterprise model should describe the resources of the enterprise (i.e., its databases and such), but should not describe its business processes
 - E. Two-tier architectures separate presentation from business logic
 - F. An advantage of placing business logic in a separate tier is that it can be more easily inspected and modified
 - G. According to Vernadat, metadata registries have been superseded by relational databases in modern IT architectures
 - H. According to Zachman, process descriptions include both functional flows and data flows
 - I. According to Clark and Waclawsky, what usually drives the need for changing designs is the emergence of new products
 - J. According to Eric Yu, for Internet-based information systems, modeling techniques must accommodate considerations of what, where, when, how, *and* why

Solution: B, C, F, H, I, J

A is false because architectural interconnections are interfaces, not products

D is false because enterprise models should also describe the business processes

E is false because two-tier architectures separate presentation and business logic from data

3. (6 points) Of the following statements, identify all that hold about names, identifiers, and namespaces. (Below $N.n$ is a qualified name corresponding to a local name n defined in a namespace N .)
- A. The main prerequisite for a unique location scheme is the existence of an architecture by which locations can be resolved
 - B. If $N_1.n_1$ and $N_2.n_2$ are the same name, then N_1 and N_2 are the same namespace
 - C. If N_1 and N_2 are the same namespace, then $N_1.n_1$ and $N_2.n_1$ are the same name

Solution: A, B, C

B is true because namespaces don't partially overlap

C is true because a local name must yield a unique qualified name in a namespace

4. (22 points) Of the following statements, identify all that hold about metadata, XML, and XML Schema.
- A. A stock quote is an example of metadata
 - B. Markup is one of the ways in which metadata may be supplied
 - C. Provenance metadata stores the origins rather than the proofs for the associated data
 - D. Metadata is desirable for technical reasons, but regulatory reasons often preclude using metadata
 - E. XML is the first standardized markup language
 - F. XML namespaces are the first kind of namespaces used in computer science
 - G. In an XML document, an element can sometimes be placed within an attribute
 - H. Although XML documents are structured as trees, XML Schema grammars are structured as graphs
 - I. In XML Schema, we can easily specify that a specific element occur no fewer than thirteen times
 - J. The XML Schema choice element is a compositor that functions as exclusive OR of its children
 - K. Empty elements are *not* the same as nil elements

Solution: B, C, I, J, K

A is false because a stock quote is an example of data; data about it (such as how old it was or the currency it was in) would be metadata

H is false because XML Schema grammars are well-formed XML documents

D is false because metadata is, if anything, more valuable for regulatory reasons

E is false because SGML predates XML