1. (6 points) Of the following statements, identify all that hold about names, identifiers, and namespaces.

   A. The main prerequisite for a unique identifier scheme is the existence of an architecture by which identifiers can be resolved

   > **Solution:** A is false: an identifier scheme requires only social agreement, not an architecture; unlike locations, identifiers don't need to be resolved as such

   B. A URL is simply a URI for which a resource exists

   > **Solution:** B is false: a URL purports to specify a resource location (based on a scheme that corresponds to an architecture for resolving said scheme) but many URLs fail to help locate resources; the existence or otherwise of a resource is irrelevant—what matters if there is an architecture for resolving it

   C. A URL of the http scheme for which the expected resource doesn't exist can still be a viable URI

   > **Solution:** C is true: as long as people agree that it identifies a resource, for example, with the XML Schema namespace URI: the existence of a resource is irrelevant

2. (22 points) Of the following statements, identify all that hold about architecture.

   A. Identity management is an important infrastructure module in enterprise architectures

   > **Solution:** A is false:

   B. The data management module in an enterprise is expected to ensure integrity of the data, to support recovery from various kinds of failures, and to host the application logic

   > **Solution:** B is false:

   C. In three-tier architecture, the business logic resides in the middle tier

   > **Solution:** C is true:

   D. The architecture of an IT system presents a high-level model of the system, including its key components and interconnections, and satisfying any constraints on them

   > **Solution:** D is true:

   E. Just like architectures for buildings, all IT architectures are equally good; the only reasons for choosing one are matters of personal taste

   > **Solution:** E is false: business requirements are crucial in judging the relative goodness of different architectures

   F. An "ility" is any of the qualities of service typically associated with aspects other than its input-output behavior; these aspects include availability, reliability, maintainability, and such

   > **Solution:** F is true:

G. An architecture in an established field such as networking or power systems is specified by the products that the major vendors promote in that field

> **Solution:** G is false:

H. IT Governance deals with the administration of an IT system from the perspective of its stakeholders (users, staff, business partners)

> **Solution:** H is true:

I. Under the data-centric view of XML documents, the Database Administrator (DBA) has an important role in IT Governance regarding designing document schemas and the storage of documents

> **Solution:** I is true:

J. Upgrading an IT system so it offers direct web access to users means that you might need to consider different peak loads, but nothing else changes

> **Solution:** J is false: also questions of user satisfaction, user assistance, security, installing software upgrades, and backward compatibility

K. We define latency as a nonfunctional property because it has no bearing on the functionality of a given service

> **Solution:** K is false: as discussed in class, latency can be significant for the functionality—e.g., a 24-hour wire transfer service for funds depends upon being completed on time

3. (24 points) Of the following statements, identify all that hold about architecture.

A. Software development is far and away the most important phase in the typical business service life cycle followed by an IT organization

> **Solution:** A is false: identifying needs before development and operating and maintaining a service after development are both highly important; most of an IT organization's effort goes into such phases—and the operation and maintenance phases may potentially never end

B. A connector in an architecture can sometimes be viewed as a component in its own right

> **Solution:** B is true: as we discussed in class, a connector at one level of abstraction such as electrical wiring or a message queue can itself be viewed as a component at another level of abstraction

C. The purpose of an architecture in an IT setting is to nail down the implementation of an IT system

> **Solution:** C is false: an architecture ought not to nail down the implementation of an IT system

D. In a well-defined approach for IT governance, each individual staff member, user, and other stakeholder plays exactly one organizational role

> **Solution:** D is false: almost impossible to ensure such a restriction in real-life settings; moreover, the more well-defined the organization the more crisply defined its roles and the greater the odds that a stakeholder will play more than one role

E. The main value of application servers is that they are an architectural component that integrate considerations of business logic with considerations of infrastructure

> **Solution:** E is false: instead application servers help *separate* business logic from infrastructure: the developer creates programs without knowing infrastructure details and the IT administrators manage the infrastructure without knowing the business logic

F. Middleware in an IT setting refers exclusively to networking components that come in the "middle" between interacting business partners

> **Solution:** F is false: middleware is broader than than and includes messaging *within* an enterprise, for example

G. One of the important payoffs of developing an open architecture is that it yields complete specifications of the architectural components that can function in the system being architected

> **Solution:** G is false: an open architecture merely specifies how the components may interact, not the complete specifications of their implementations

H. The emerging trend in middleware is the increasing development of explicit middleware to replace older implicit middleware

> **Solution:** H is false: the trend is toward implicit middleware, employing which doesn't require changing the existing codebase

I. DoDAF, The Department of Defense Architecture Framework, provides a standardized methodology for developing an enterprise architecture

> **Solution:** I is true: DoDAF calls for a series of documents culminating in an architecture; how the architecture would itself be implemented in a running system is not an emphasis of DoDAF

J. DoDAF, The Department of Defense Architecture Framework, was motivated to develop and maintain short-lived information systems that arise in agile environments in the military and elsewhere

> **Solution:** J is false: DoDAF is intended for systems of lifetimes measured in decades

K. An architecture needs to consider system requirements but not factors like the skills of the enterprise staff or of the workforce broadly

> **Solution:** K is false: