Problem	1	2	3	Total
Points:	6	32	42	80
Score:				

This homework assignment has 3 problems, for a total of 80 points.

1. (6 points) Of the following statements, identify all that hold about e-business concepts.
   A. The key need for e-business is to build integrated systems from heterogeneous parts
   B. The so-called optimistic approach, i.e., letting violations occur but correcting them, is not compatible with the assumptions of e-business
   C. Coherence is the appropriate standard of correctness for e-business systems

2. (32 points) Of the following statements, identify all that hold about services and contracts.
   A. Traditional process modeling approaches are well-suited to technical services
   B. A technical service is a computation that can participate in a computational process
   C. Coproduction is something that applies to coproduced goods not to services, since services are not produced
   D. Coproduction is an accurate description of health care since people pick up many diseases in hospitals
   E. If a service engagement is well-designed, the order in which business relationships are set up matches the order in which the messages occur during enactment
   F. Contracts provide the constraints on how an e-business system may function
   G. Contracts in e-business settings help specify each business partner as a black box that does what it is supposed to
   H. We can use commitments to analyze whether a contract is well formed
   I. The commitments in a contract capture what a business partner needs to do to comply with it
   J. Sometimes a commitment may have two antecedents
   K. Modeling commitment regression can help us capture how a satisfied or violated commitment can go back to being active
   L. If a message from a debtor to a creditor creates a commitment, such as by stating an offer, the commitment goes into effect on both parties only after the message has been received
   M. If a message from a debtor to a creditor creates a commitment, such as by stating an offer, the commitment goes into effect only after the creditor accepts the offer
   N. A commitment $\mathsf{C}(d, c, p, q)$ goes into effect only if the creditor creates a commitment $\mathsf{C}(c, d, q, p)$
   O. A benefit of modeling protocols using commitments is that we can produce additional enactments based on commitments (such as via delegation) without having to specify them in advance
   P. When a commitment is delegated, the responsibility for discharging it remains with the original debtor

3. (42 points) Of the following statements, identify all that hold about protocols and specifications.

   A. Traditional process modeling approaches mix private and public elements, thus conflating policies and protocols

   B. The essential idea of method invocation in object-oriented programming applies in modeling business interactions

   C. A telephone call, viewed at the user level, is a classical example of a remote procedure call

   D. In asynchronous messaging, information flows to the receiver of a message

   E. In synchronous messaging, information flows to the sender of a message

   F. The sending of a message is causally prior to its receipt

   G. The guards in a sequence diagram specifying a protocol may refer to the internal state variables of the party whose lifeline they occur on

   H. The typical scenario with a delegation of work (as in a merchant asking a shipper to make a delivery) does not quite fit into the nested remote procedure call pattern

   I. An operational specification of a protocol describes the steps taken by each party and how they are to be ordered

   J. Judging whether a sequence diagram specification of a protocol is well formed should depend only on considerations of information flows in a causally realistic manner

   K. A declarative specification of a protocol does not describe the steps taken by each party and how they are to be ordered

   L. A constitutive specification of a protocol is a kind of a meaning-based specification

   M. A well-designed protocol has both private and public components

   N. Beginning from the policy points identified in a sequence diagram, we can determine a useful protocol

   O. In applying state diagrams to specify a protocol, we place all messages on transitions between states

   P. A nested state signifies that the state is a conjunction of all its substates

   Q. If we have obtained state diagrams for distinct protocols, we can produce the state diagram of the composed protocol by using the individual protocols as parallel states

   R. State diagrams serve as a useful representation for protocols when we identify meaningful states

   S. Determining the meaning underlying a state that arises from a given transition is an element of business modeling

   T. In a state diagram, the labels associated with states are irrelevant to the enactment: all that matters is knowing the current state and computing the guards on the various transitions

   U. Race conditions cannot arise in protocols modeled using state diagrams because there is always a unique correct state of the entity being modeled