Example Questions for an In-Class Quiz (Open Books/Notes)

1. (10 points.) Answer the following questions concisely based on the paper "RATEWeb: Reputation Assessment for Trust Establishment amongWeb services."

   (a) Is RateWeb proposed by the authors based on feedbacks only? Why?

   (b) Which information among below is not used by RateWeb to rate a rater? (There is only one answer. No need to explain your reason.)

      i. Majority Rating
      ii. Past Rating History
      iii. Personal Experience for Credibility Evaluation
      iv. Personal Preferences
      v. Personal Experience for Reputation Assessment
      vi. Temporal Sensitivity

   (c) Give one reason why RATEWeb can still provide the assessed reputation fairly consistent and close to the actual reputation in Fig. 7 in which low credibility raters out-number others.

   (d) Give one reason RATEWeb performs better than PeerTrust in terms of reputation accuracy.

2. (10 points.) In the paper "Trustworthy Service Selection and Composition," the two main approaches proposed by the authors are the Bayesian Network approach and the Beta mixture approach. Answer the following questions based on the assumption that the quality trust of service i (θ_i) is based on the beta probability distribution with parameters (α_i, β_i). Also use the Bayesian network in Fig. 2 as an example.

(a) The Bayesian Network approach provides accurate quality trust estimate of a composite service despite incomplete data about quality trust of constituent services. Fig. 3 demonstrates the effectiveness of the approach. In one short paragraph, describe the basic principle used for achieving this objective.

(b) The Beta mixture approach allows the contribution of each service toward the composite service to be estimated, given that only composite service quality observations are available as input. Fig. 8 demonstrates the effectiveness of the approach. In one short paragraph, describe the basic principle used for achieving this objective.

3. (10 points.) For the paper "Trust mechanisms for cloud computing," the authors proposed two new mechanisms for trust judgement of cloud entities such as a cloud broker, a cloud service provider, etc. These two new mechanisms according to the authors are over and above existing mechanisms including reputation, QoS monitoring and SLA verification, self-assessment and information revealing, trust as a service, and formal accreditation. What are these two new mechanisms? Elaborate.

4. (10 points.) In the paper "Measuring Behavioral Trust in Social Networks," the main contribution is to present measurable behavioral metrics for trust in social networks. The authors develop "statistical" algorithms to construct dyadic trust graphs (T_C and T_p) for two social trust behavior patterns: conversation and propagation.

   (a) The statistical algorithms are scalable to social networks on millions of nodes. Why?

   (b) Do they use retweets information to construct the two dyadic trust graphs (T_C and T_p)?

   (c) When using Twitter data, there is significant similarity between T_C and T_p. What is the physical implication of this similarity?

5. (10 points.) In the paper "Predicting Trust and Distrust in Social Networks," the authors point out that distrust is not transitive, so traditional algorithms based on the notion of the transitivity of trust may not work. What is the basic idea used by the authors to compute distrust? What is the limitation of their algorithm (name one)?