

**Question 1: History.....[90 points]**

- (i) **[10 points] History:**  
Explain how the "SQL vs. NoSQL" debate is reminiscent of "Relational vs. CODASYL" debate.
- (ii) **[10 points] Data Independence:** Distinguish between: (1) logical and (2) physical data independence.
- (iii) **[10 points] Data Models:**  
Distinguish between: (1) hierarchical, (2) network, and (3) relational data models.
- (iv) **[10 points] Data Models:**  
List the drawbacks of: (1) hierarchical, (2) network, and (3) relational data models.
- (v) **[10 points] Data Models:**  
Explain the limitations of the object-oriented data model.
- (vi) **[10 points] Novel Database Systems:**  
What is a data warehouse? List the storage model that works well for these systems.
- (vii) **[10 points] Novel Database Systems:**  
Distinguish between: (1) NoSQL and (2) NewSQL systems.
- (viii) **[10 points] Novel Database Systems:**  
Explain the benefits of a HTAP system.
- (ix) **[10 points] Novel Database Systems:**  
Explain the benefits of a Cloud system.