ADT Quiz

An animal rescue is designing their software systems. Please let's help them choose the best ADT for their needs by selecting the best ADT answer from the multiple choices given below.

1. For each animal, we would like a record that indicates the species, name, gender, age, medical conditions, and ID within the rescue. We need to be able to search each animal's record by its ID. What ADT is best to keep track of all of the animals?
    a. List of animal records
    b. Set of animal records
    c. Map of animal records with the key set to ID and value the entire record
    d. List of animal record structs with field for species, name, gender, age medical condition, and ID

2. For each animal, we need to maintain all the medical conditions that the animal has ever experienced, regardless of how many times it has suffered that condition. What is the best ADT to store all the medical conditions for a single animal? Any medical condition data has an unique name.
    a. List of medical conditions
    b. Array of medical conditions in order in which animal experienced them with most recent in front of array
    c. Set of medical conditions
    d. Map of medical conditions where the condition has a unique name and value is date of the condition.

3. Since there is great demand for puppies, we need to be able to be able to present all puppies for adoption from youngest to oldest for potential adopting families. What is the best ADT for all the puppies that are ready for adoption?
    a. Array of puppy records with the youngest puppies at the smallest indices
    b. Map of puppy records with puppy ID as key and complete record as value
    c. Set of puppy records of all puppies that are old enough to be adopted
    d. List of puppy records sorted by the age of the puppies

4. The animal hospital at the rescue must keep track of all of the conditions a patient has ever had. The hospital would like to look up the patient with its ID and then check if that patient has ever suffered the from a particular condition. What would be the best ADT for the hospital to use?
    a. List of lists of conditions of each patient
    b. Map with key equal to animal ID and value equal to a list of medical conditions
    c. Map with key equal to animal ID and value equal to set of medical conditions
    d. Linked list of animal records