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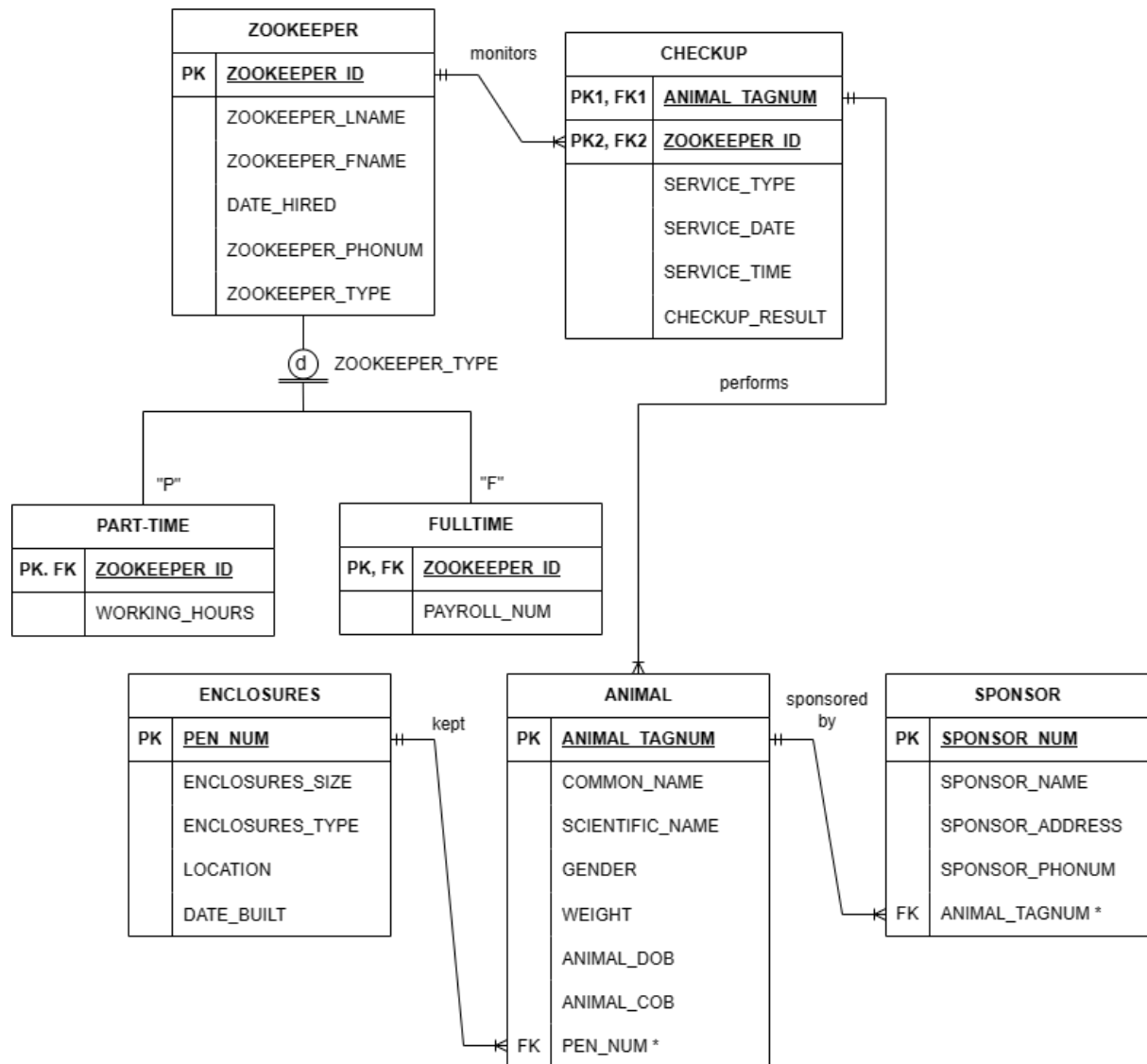
**Group: CDCS1103C**

#### QUESTION 1

The Zooza Zoo requires a database system to keep track of their animal records. The database will keep information about animal husbandry, which involves medical care of individual animals. As a database designer, you have decided to move from a paper record-keeping system to a more modern electronic system. The zoo has over 3,000 animals, representing over 400 species. For each species of animal, it is required to store the species common name (for example, Lion), scientific name (for example, *Panthera leo*), gender, weight, date of birth (if known) and country of birth. Each individual animal in the zoo has a unique tag number, typically engraved on a small leg band or bracelet. All animals are kept in enclosures, most of which contain more than one animal. Each animal is restricted to a single enclosure (assume that the animal never being moved from one enclosure to another). Each enclosure has a unique "pen number" and the data that must be recorded are its size in square feet, type, location, and date built. The system should keep record on which animals are kept in which enclosures. The zookeeper performs periodic health checkups on the animals. For each zookeeper, the first name, last name, date hired, and mobile phone number need to be recorded. There are two types of employees which are full-time and part-time employees. Full-time employees have payroll numbers and part-time employees have working hours. Each animal's health condition will be monitored by one or three zookeepers depending on the species and total numbers of animals in that particular enclosure. The service type, date, time, and results of the health checkup need to be stored for every visit to ensure the wellbeing of the animals. The zoo management also needs to record the sponsorship details of each animal. The animal sponsorship program is open to any corporate organizations or individuals to assist the zoo in maintaining the varieties and large amount of food, well-equipped enclosures, medical care and animal activities. The annual contribution and the renewal date must be stored for future reference. Each animal can be sponsored by several sponsors. The sponsor number, name, address, and telephone number must be recorded.

- a) Using Crows foot notation, draw a complete Entity Relationship diagram based on the information given above. Show all entities, attributes, relationships, and connectivity involved. (use tool)

(16marks)



- b) List and describe 2 examples of report that can be produced from this database system.

(4 marks)

1. The number of health checkup that have been received by animals.
2. The total working hours for part-time zookeeper.