Name :- Aditya Gupta

Roll No :- 2215000094
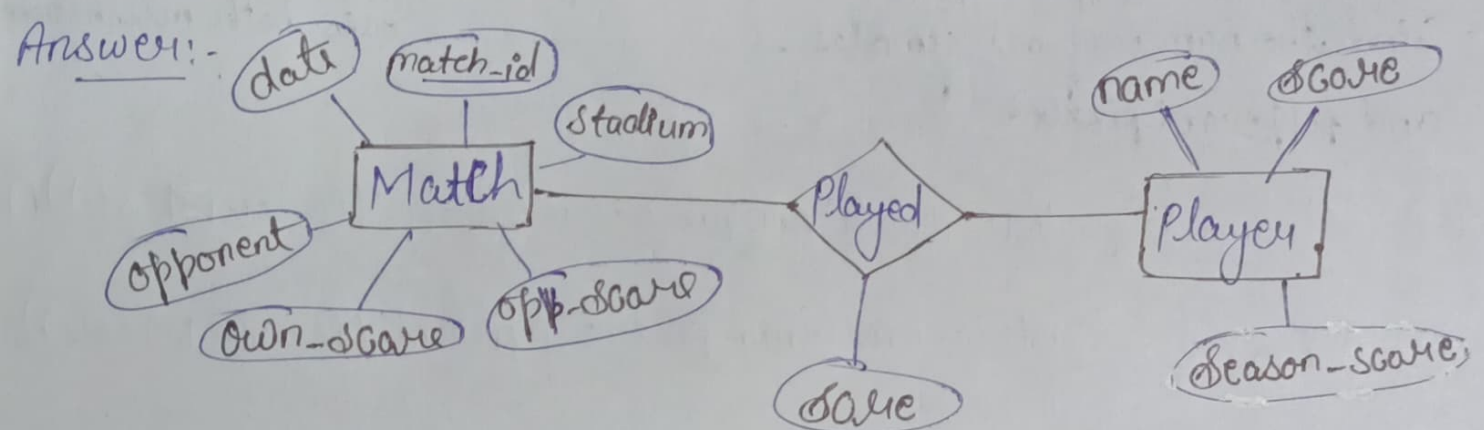
Class Roll No :- 47 (B)

corir duce

Sub :- DBMS

Assignmen - 1. (Set - 4)

Ques1:- Design an ER Diagram for keeping _ modeled as derived attributes.

Answer:-

E-R Diagram for favourite team statistic

Ques2:- Consider a database with the following schema:-

Person (name, age, gender)   name is key

Frequent (name, pizzeria)   (name, pizza) is a key

Fats (name, pizza)   (name, pizza) is a key

Serves (pizzeria, pizza, priece)   (pizzeria, pizza) is a key

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Write a relational algebra expression for the following queries :-

(a) find all _ _ _ _ _ _ _ _ _ _ _ _ _ _ under the age of 18.

Answer:- $\pi_{pizzeria} (\sigma_{age < 18}(Person) \bowtie frequents)$

(b) Find all the name of _ _ _ _ _ _ _ mushroom or pepperoni (or both).

Answer:- $\pi_{name} (\sigma_{gender = 'female' AND (pizza = 'mushroom' or pizza = }$

$'pepproni' (Person \bowtie Eats))$.

Person (name, age, gender), frequents (name, pizzeria), Eats (name, pizza)
 Serves (Pizzeria, pizza, price)

(c). Find the names of all females _ _ _ _ _ _ _ _ eats both mushroom

and pepperoni pizza.

Answer: $\pi_{name} (\sigma_{gender = 'female' AND pizza = 'mushroom'}(Person \bowtie Eats)) \cap$

  $\pi_{name} (\sigma_{gender = 'female' AND pizza = 'pepperoni'}(Person \bowtie Eats))$

 Person (name, age, gender)
 frequents (name, pizzeria)
 Eats (name, pizza)
 serves (pizzeria, pizza, price).

Ques3:- Let a Relation R _ _ _ _ _ _ _ _ _ _ _ number of super
  Keys?

Answer:- Super key of (a,a2) + super key of (a,a3) -
  Super key of (a,a2,a3)

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→ $2^{(n-1)} + 2^{(n-2)} - 2^{(n-3)}$,, Ans.

Ques 4:- Construct an E-R Diagram _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ tests and examination.

Answer:-
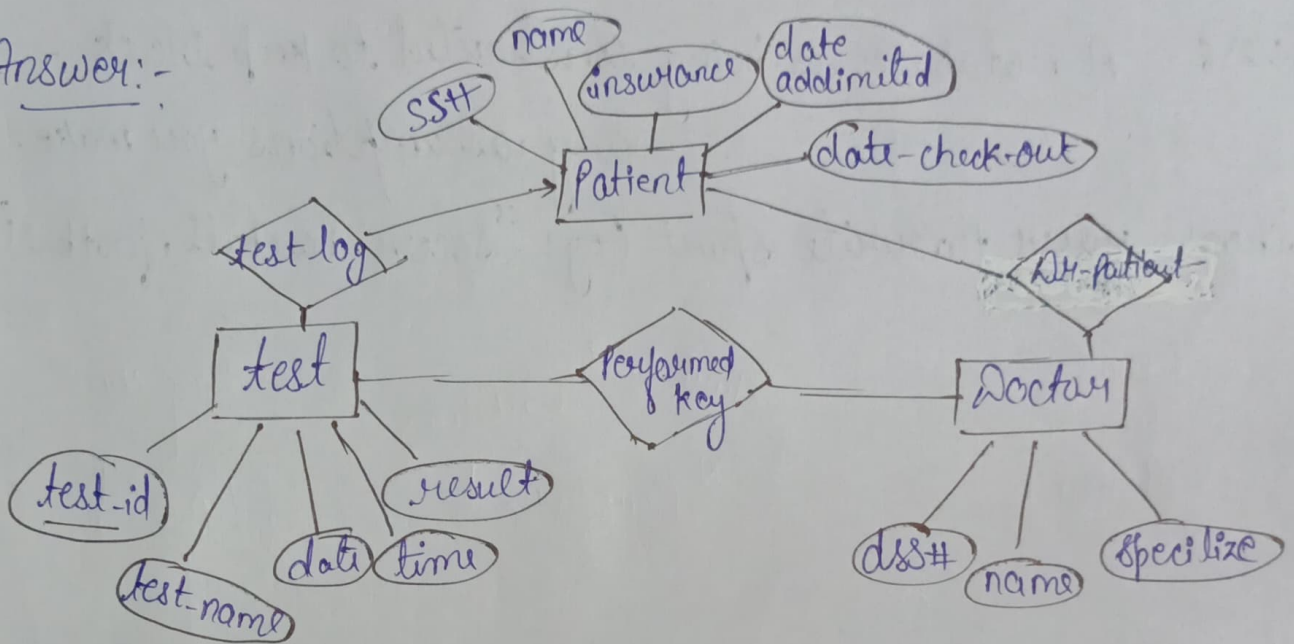
ER Diagram for a Hospital

Ques 5:- In a schema with _ _ _ _ _ _ _ _ by the above set?

a) $CD \rightarrow AC$

b) $BD \rightarrow CD$

c) $BC \rightarrow CD$

d) $AC \rightarrow BC$

e) $B \rightarrow E$

Answer:- The correct answer is → (b) $BD \rightarrow CD$

closure set of $CD = AB \cdot ACBDE$

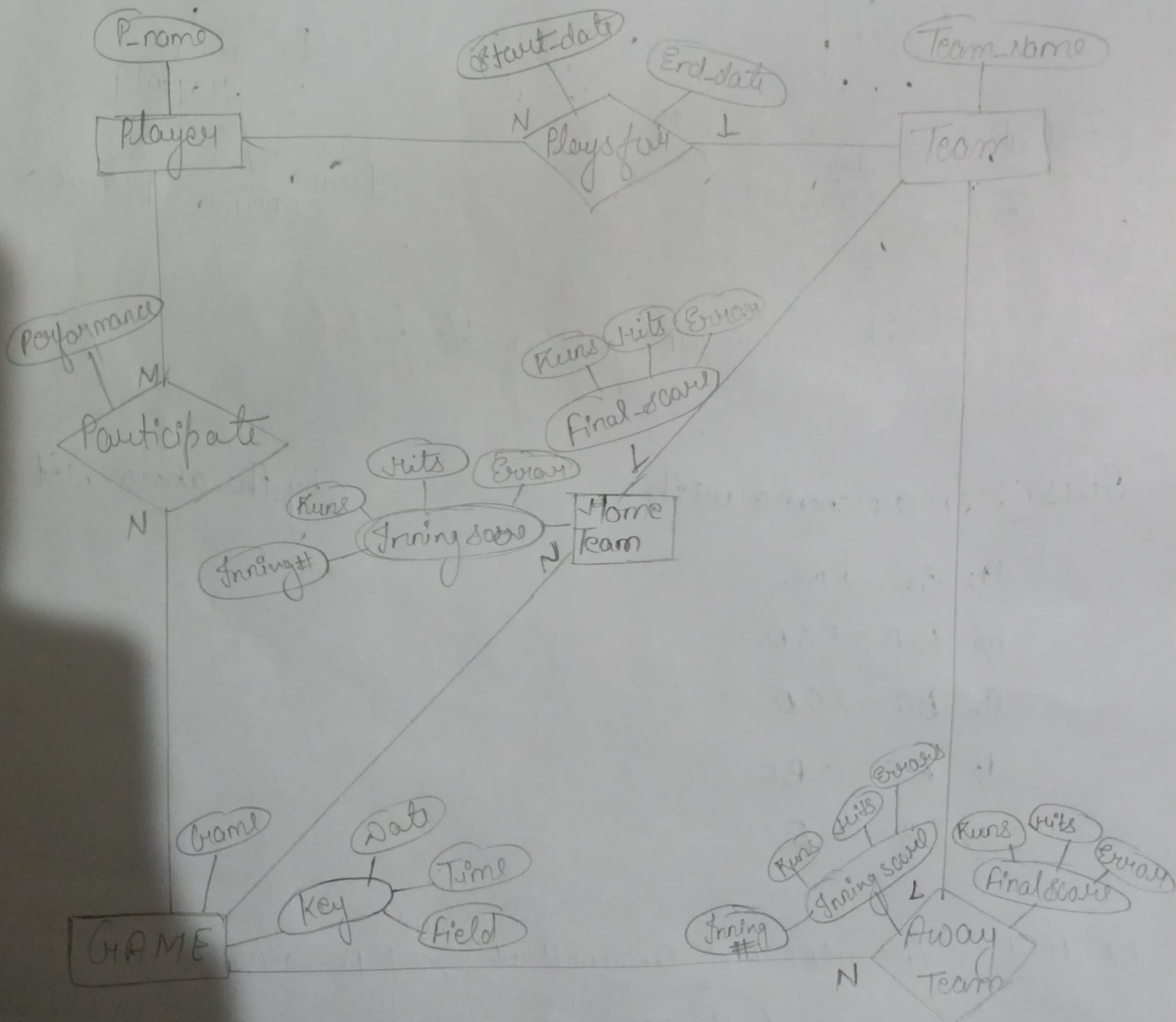Name:- Aditya Gupta   UNIV_NO:-2215000094

closure set of BC = ECDAB

Closure set of AC = BCDAE

Closure set of BD = Cannot be derived from set of FD's.

Ques6:- A Database is being constructed to keep track - - -
- - - - - - - - - - - - - - any assumptions you make.
choose your favourite sport (eg: "Soccer, baseball, football)

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Ques 7:- Consider the E-R Diagram - - - - - - - - - - - - - - - - - - into a relational schema.

Solution.   Tables we have :-

1) Doctar (Emp-id, Name, Extn)
2) Paitent (Paitent-id, Name, DOB)
3) Ward (Name)
4) Drug (If, Recs, Josage)
5) Bedname ()
6) Nurse (Name, Emp-id)
7) Diagnose (Patient-id, Emp-id)
8) Admitted-in (Patient-id, Name)
9) Managed by (Name, Emp-id)
10) Base Loe (Name, Emp-id)
11) Treatment (Patient-id, Emp-if, Time, date)

Ques 8:- Let K (A,B,G,D,E) - - - - - - - - - - - - Super Keys.

Answer:- Given, K (A,B,G,D,E)
              functional dependencies:-
      AB → C, C → D, B → E

(a) CK = AB (candidate key) (∵ AB = (ABCDE))

    Number of Candidate key = 1.

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b> Super Key = AB, ABC, ABD, ABE, ABCD, ABCE, ABCDE, ABDE.

Number of Super key = 8.