

Total No. of Questions : 5]

SEAT No. :

P1382

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[5623]-1002

F.Y. B.Sc.

COMPUTER SCIENCE

CS - 112 : Database Management Systems

(New CBCS 2019 Pattern) (Semester - I) (Paper - II)

Time : 1½ Hour]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q.2 to Q.5.*
- 3) *Question 2 to 5 carry equal marks.*

Q1) Solve any five of the following :

[5 × 1 = 5]

- a) What is data independence?
- b) Define candidate key.
- c) What is aggregation?
- d) Primary key of one relation acts as reference key to another relation. State true or false.
- e) What is relation?
- f) Consider a relation student (roll no, name, per) and write a query in SQL : list names of student having per less than 75.

Q2) a) Attempt any two :

[2 × 3 = 6]

- i) Write a note on Data models.
- ii) What is decomposition? What are the desirable properties of decomposition?
- iii) What is normalization? Which are the different types of it? What is use of it in DBMS.

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- b) Consider the following relations :
- Country (con-code, name, capital)
Population (pop-code, population)
- Country and population are related with one to one relationship. Create a RDB and solve the following queries in SQL. [4]
- Give the name and population of country whose capital is “Delhi”.
 - List the name of all the countries whose population is greater than 250000.
 - Delete the country whose capital is “Tokyo”.

Q3) a) Attempt any two : [2 × 3 = 6]

- Explain various types of users in DBMS.
- Compare DBMS with RDBMS.
- Define primary key, super key and reference key.

b) Consider the following relations : [4]

Person (P-no, pname, address)
Car(C-no, year, model)

Person and Car are related with one to many relationship. Create a RDB and solve the following queries in SQL.

- List the names of all people who own ‘BMW’ car.
- Delete all the details of the person ‘Mr. Kadam’.
- List the persons who own the car in year 2018.

Q4) a) Attempt any two : [2 × 3 = 6]

- Write a note on E-R data model.
- Explain any three aggregate functions in SQL with proper example.
- Write any three armstrong’s axioms.

b) Consider the following relations [4]

game (gno, gname, no-of-player, coach-name, captain)
player (pno, pname)

Game and player are related with many to many relation. Create a RDB and solve the following queries in SQL.

- List the name of players playing ‘football’ and ‘hockey’.
- List all the games whose coach is “Mr. Ramesh”.
- List the name of players playing game ‘Basketball’.

Q5) Attempt any two :

[2 × 5 = 10]

- a) Consider relation schema $R = (A, B, C, D, E)$ and set of functional dependencies defined on R as :
- $F = \{AB \rightarrow C, CD \rightarrow E, DE \rightarrow B\}$ check whether ABD is a super key?
- b) Car insurance company has a set of customers, each of whom owns one or more cars. Each car is associated with zero to any number of recorded accidents.
- Draw an E - R diagram.
 - Convert E - R into RDB in 3NF.
- c) What do you mean by an integrity constraint? Explain any two with example.

