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SEAT No. :

**PA-995**

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**F.Y. B.Sc. (Computer Science)**

**CS-112 : DATABASE MANAGEMENT SYSTEMS**

**(2019 CBCS Pattern) (Semester - I)**

*Time : 2 Hours]*

*[Max. Marks : 35*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

**Q1)** Attempt any EIGHT of the following.

**[8×1=8]**

- a) Justify true or false- "Primary key cannot be null".
- b) Define Database System.
- c) What is the primary key?
- d) What is the difference between entity & attributes?
- e) State the entity integrity constraint?
- f) Explain the use of the aggregate function.
- g) Define Generalization.
- h) Define the third normal form.
- i) List the commands in DDL?
- j) List any two disadvantages of DBMS.

**Q2)** Attempt any FOUR of the following.

**[4×2=8]**

- a) Explain various types of users in DMS.
- b) Explain the ternary relationship with an example.
- c) What is DML? Explain procedural DML.
- d) Write syntax for CREATE TABLE statement and UPDATE statement.
- e) Give the applications of the closure set of attributes.

**Q3)** Attempt any TWO of the following.

**[2×4=8]**

- a) Write a short note on data abstraction.
- b) State and explain different types of relationships that can exist in an entity set in an E-R model.
- c) What is a referential integrity constraint? Explain in brief.

**P.T.O.**

**Q4) Attempt any TWO of the following. [2×4=8]**

- a) Consider the following relation:  $R(A, B, C, D, E)$  and the set of FDs defined on  $R$  as:  $F = \{A \rightarrow B, CD \rightarrow E, A \rightarrow C, B \rightarrow D, E \rightarrow A\}$ . Compute the closure of  $F$  i.e.,  $F^+$ .
- b) Consider the following relations:  
Wholesalers (wno, wname, address, city)  
Product (Pno, Pname)  
Wholesalers and product are related with many to many relationships. Create a relational database in 3NF and solve the following queries in SQL:  
i) List the wholesalers of product 'Mouse'.  
ii) Count the number of wholesalers from 'Pune' city.  
iii) Delete records of wholesalers where the product name is 'Scanner'.
- c) Consider the following relations:  
Supplier (S id, sname, address)  
Parts (P\_id, Pname, Colour)  
Suppliers and parts are related with many to many relationships with the descriptive attribute cost. Create a relational database in 3NF and solve the following queries in SQL:  
i) Find the names of suppliers who supply parts that are blue or pink in colour.  
ii) Find the total cost of all parts supplied by 'Shree Agencies'.  
iii) Find the names and addresses of all suppliers who are supplying the item 'Bath towel'.

**Q5) Attempt any ONE of the following. [1×3=3]**

- a) Consider a trucking company which is responsible for picking up shipments for warehouses of a retail chain and deliver the shipments to the individual store location. A truck may carry several shipments in a single trip and deliver it to multiple stores. Draw an E-R diagram for the truck shipment system.
- b) In an order processing system where a person with characteristics name, address, phone, and person id can give the order for many items by specifying its quantity. Item has characteristics item number and description. Draw an E-R diagram for the order processing system.

