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**BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)**  
**B.C.A. Sem-II : WINTER- 2022**  
**SUBJECT : DBMS-I**

Day : Saturday

Time : 02:00 PM-05:00 PM

Date : 10/12/2022

**W-18760-2022**

Max. Marks : 60

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**N.B.**

- 1) Q.4 from Section – I is **COMPULSORY**.
  - 2) Answer **ANY TWO** questions from Q.1, 2, 3 in Section – I
  - 3) Answer **ANY TWO** questions from Q.5, 6, 7 in Section – II
  - 4) All questions carry **EQUAL** marks.
  - 5) Draw neat and labelled diagrams **WHEREVER** necessary.
  - 6) Answers to both the sections should be written in **SAME** answer book.
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**SECTION – I**

- Q.1** Answer the following: (12)
- a) Data independence and its types
  - b) Types of database systems
- Q.2** Explain CODD's rules that qualify database as a relational database. (12)
- Q.3** What is normalization? Explain the process of 1NF, 2NF and 3NF with an examples. (12)
- Q.4** Write short notes on the following **ANY THREE**: (12)
- a) Database schema
  - b) Compare and contrast database system with conventional file system.
  - c) Referential integrity
  - d) State transition diagram of transaction
  - e) Functions of DBA

**SECTION – II**

- Q.5** Draw an Entity Relationship Diagram for the following scenario. (12)  
Departments, identified by ID, operate a variety of printers, each located in a particular room in particular building. Printers are supplied by a number of suppliers, identified by name, with each supplier charging a different price for a given printer, but also providing different delivery delays, measured in days. A given room can have a number of printers including none.
- Q.6** Discuss about different types of failures. Explain log based recovery mechanism in detail. (12)
- Q.7** What is concurrency control? Why is it required? Explain in detail about time stamp based concurrency control techniques. (12)

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