

**U.G. 2nd Semester Examination - 2022****COMPUTER SCIENCE****[HONOURS]****Generic Elective Course (GE)****Course Code : COM.Sc-H-GE-L-202****(Database Management Systems)**

Full Marks : 40

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***GROUP-A**

1. Answer any **five** questions : 2×5=10
- What do you mean by database?
  - What are the functions of DBMS?
  - What is view in SQL?
  - Who is a DBA? What are the responsibilities of a DBA?
  - What is an entity relationship model?
  - What are the different types of languages that are available in the DBMS?
  - What is normalization? Give one example.

*[Turn over]***GROUP-B**

2. Answer any **two** questions: 5×2=10
- Define schema. Explain three level architecture in DBMS. 2+3=5
  - What is redundancy? Explain the anomalies in relational database. 2+3=5
  - Explain Codd's relational database rules. 5
  - Justify the statement "BCNF is stronger than 3NF" with the help of a suitable example. 5

**GROUP-C**

- Answer any **two** questions: 10×2=20
- What do you mean by weak entity set? Explain 1NF, 2NF, 3NF with suitable examples. 1+9=10
  - Differentiate between database management system and file-based system.  
If  $R = \{ A, B, C, D, E \}$  and  $F = \{ A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H \}$ . List all the candidate keys. 5+5=10
  - Define Primary Key and Candidate Key. Differentiate between them. Give suitable examples. Discuss in detail the operators SELECT, PROJECT, UNION with suitable examples. 5+5=10

6. Write short note on any **two** of the following:

5×2=10

- a) Relational constraints
- b) Data model
- c) Relational algebra

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