Roll No. .....

67074

MCA 2nd Semester (Non CBCS Scheme) w. e. f. May – 2013 Examination – May, 2019

DATABASE MANAGEMENT SYSTEMS

Paper : MCA- 204

Time : Three Hours] *[Maximum Marks : 80*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. **1** is ***compulsory***. Attempt ***four*** questions by selecting ***one*** question from each Unit. All questions carry equal marks.

1. (i) What are advantages and disadvantages of DBMS ?

(ii) What do you mean by Ranger ?

(iii) Differentiate between static and dynamic SQL.

(iv) What is database concurrency ?

(v) What are the three basic techniques to control deadlocks ?

(vi) What is a weak entity ? Give examples.

(vii) Why concurrency control is needed ?

(viii) Explain role and responsibilities of DBA.

$2 \times 8 = 16$

UNIT – I

2. (i) What is the difference between logical data independence and physical data independence ? Which one is harder to achieve ? Why ? 8

(ii) What four main types of action involve databases ? Briefly discuss each. 8

3. (i) Describe the three - schema architecture. Why do we need mappings among schema levels ? How do different scheme definition languages support this architecture ? 8

(ii) What is an entity set ? Explain the differences among an entity, an entity type and an entity set. 4

(iii) Explain the difference between a single - valued attributes and a multi- valued attribute. 4

UNIT – II

4. Explain the following Relational Algebra operations with example : 16

(a) Natural Join

(b) Union

(c) Project

(d) Select

5. (i) What is the difference between candidate key, primary key and unique key ? 6

(ii) What are the rules that must be satisfied by the foreign key ? 4

(iii) What is an attribute ? Describe various types of attributes with examples. 6

UNIT – III

6. (i) Describe the six clauses in the syntax of an SQL Query and show that type of constructs can be specified in each of the six clauses. Which of the six clauses are required and which are optional ? 12

(ii) Define super key and candidate key with an example. 4

7. (i) What is normalization ? Explain 1NF, 2NF, 3NF and BCNF giving examples. 12

(ii) What is embedded SQL ? Give example. 4

UNIT – IV

8. (i) What is concurrency control and what is its objective ? 6

(ii) What is a deadlock and how can it be avoided ? Discuss several deadlock avoidance strategies. 10

9. (i) Write a short note on : 6

(a) Data Independence

(b) ACID properties

(ii) List and discuss the five transaction properties. 6

(iii) What is a lock and how does it work ? 4