**Roll No……..** **Total No. of Printed Pages: 01**
**Total No. of Questions: [09]**

**B. Com (Hons.) (Semester – 6th)**
**DATABASE MANAGEMENT SYSTEMS-I**
**Subject Code: BCSE0F95**
**Paper ID: [OE2140324]**

**Time: 03 Hours** **Maximum Marks: 60**

**Instruction for candidates:**

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

**Section – A** **(2 marks each)**

Q1. Attempt the following:

a. What is the difference between an entity and an attribute? How are they represented in an ER Diagram?
b. What is a transaction? Explain the ACID properties of a DBMS.
c. What is the main difference among DROP, DELETE and TRUNCATE command?
d. Describe the different types of keys in a DBMS?
e. What is the difference between having and where clause?
f. What do you understand by functional dependency and transitive dependency in DBMS?
g. Difference between relation calculus and relational algebra.
h. Explain the states through which a transaction passes during execution.
i. Differentiate between Wait die and wound wait protocols.
j. Write a query to remove duplicate rows in SQL?

**Section – B** **(5 marks each)**

Q2. (a) Write a SQL query to find the nth highest salary in SQL?
(b) Write a SQL query to find the names of employees that begin with ‘A’?

Q3. Explain what is a deadlock and mention how it can be resolved? What are the differences between an exclusive lock and a shared lock?

Q4. Explain 2-phase locking protocol. Why is 2 phase locking needed?

Q5. What do you understand by concurrency control in database systems? What mechanisms can be used for this purpose?

Q6. What do you mean by integrity of data? List any two integrity constraints. Explain how to deal with constraint violation?

**Section – C** **(10 marks each)**

Q7. What is normalization and explain the different normal forms for normalization with examples.

Q8. What is serializable scheduling? Explain with an example. Differentiate between serial schedule and serializable schedule.

Q9. What is Database Access Control? Explain access control mechanisms: Discretionary Access Control and Mandatory Access Control.