END TERM ASSESSMENT– DECEMBER 2020
SEMESTER –III
B. Tech (Computer Science and Engineering)
(Common for 2017, 2018, 2019 batches)

Subject Code: **CS 2005**
Subject Name: **Database Management System**
Duration: **2 hours** (including time for uploading)
(10 Minutes Max Grace time)
Max. Marks: **50**

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INSTRUCTIONS

- Write name and registration number, page number, on all the pages, convert into one PDF, tag it with your registration number_Name_subject code_subject title
- The Assessment consists of 2 sections
  - Part A contains 10 questions of 2 marks each and all questions are compulsory.
  - Part B consists of 4 questions of 10 marks each, out of which 3 questions to be attempted.
- Hand written responses to be submitted/uploaded as scanned pages of answer sheets (max. 5 pages) within the mentioned duration.

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PART – A

2 * 10 =20 Marks (Each answer- Word Limit- 50 Words)

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1. Define Serializability.
2. Draw a 3-tier architecture of DBMS.
3. Differentiate between total participation and partial participation.
4. What is primary key and foreign key?
5. Write the features of SQL.
6. What do you mean by referential integrity?
7. Define data fragmentation.
8. Define Cardinality and Degree of the relation.
9. Consider a relation R (A , B , C , D , E , F , G) with dependencies A → BC, BC → DE, D→ F, CF → G. Compute the closure of A.
10. Explain ACID properties.

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PART – B

10 * 3 = 30 Mark (Each answer- Word limit- 250 words)

11. Compare and contrast the traditional file based system with Database approach.

12. Define normal forms and explain with suitable example of Third and BCNF normal forms.

13. What do you mean by Join operation? Write Outer join (left, right and full) with proper table and relational algebra query.

14. a) Consider the following schema for student database of an institute:

Teacher (Teacher_id, Tname, Department)
Student (Roll_no, Sname, Branch)
Teach (Teacher_id, Roll_no, Subject)

Write the SQL queries in SQL:

i) Write SQL statements for creating the above database.
ii) Write SQL statement to insert one record to each table. The data can be assumed.
iii) List the name and branch of students registered for the subject "DBMS".
iv) List the name of teachers and their concerned department who are offering either 'DBMS' or 'Operating System'.
v) List the name of students who are being taught by teachers of 'CSE' department.

b) What are locks in DBMS? Also, briefly explain Lock based protocols.