THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

COURSE CODE: COS 2582/3473 **MARKS : 75**
COURSE TITLE: Relational Database Management System **TIME : 3 HRS**

ANSWER ANY 5 QUESTIONS **(5*15=75)**

1. a. Illustrate the core architecture of database system with suitable diagram. **(8)**
   b. Compare and contrast file system with database systems. **(7)**

2. Design an ER Diagram for keeping track of the exploits of your favourite sports team. You should store the matches played, the scores in each match, the players in each match and the individual player statistics, Summary statistics should be modelled as derived attributes. **(15)**

3. Write the properties to be stratified while finding canonical cover of F. Compute the canonical cover for the functional dependencies given relation schema R ={A,B,C,D,E,F,G,H}. **(15)**

   $F = \{AC \rightarrow G,$
   $D \rightarrow EG,$
   $BC \rightarrow D,$
   $CG \rightarrow BD,$
   $ACD \rightarrow B,$
   $CE \rightarrow AG\}$

4. Recall various constraints enforced in database systems to maintain consistency. Give suitable SQL command line example for constraint definition. **(15)**
   - Primary,
   - Foreign,
   - Unique
   - Not Null,
   - Check

5. Consider the following database and answer the following with SQL Command:
   Table Name: Student (Serial_Number number, Register_Number varchar(5), stud_Name varchar(10), Dateofbirth date, dept_name varchar(5), CGPA number). **(15)**
   a. Create the mentioned table (Note: Define Register Number as Primary Key)
   b. Display only student name, CGPA of all the students.
   c. Display the name of the student who got top CGPA.
   d. Display the Name of students who are in CSE department.
   e. List Toppers in each department in ascending order.

6. Identify the necessity of Transaction Control in DBMS, Give Suitable Example for TCL Commands which maintains consistency in Database. **(15)**

7. Create a trigger to update the column 'salary' in the employee table, which ensures that salary cannot be reduced than the current salary. **(15)**

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